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PART FIRST.

ORIGINAL COMMUNICATIONS.

ART. I.—*Case of Ovarian Tumor, in which death resulted from Entero-Peritonitis arising from a novel cause.* By W. H. VAN BUREN, M. D., one of the Surgeons of Bellevue Hospital, &c., (with a Plate.)

THE following case presents points of such unusual interest in connection with a disease, the treatment of which at present occupies no small share of attention from the profession, that I am induced to place it on record. It is copied from the record originally made by Dr. E. L. Jones, Assistant House Surgeon, Bellevue Hospital.

Rosanna Shields, 29 years of age, widow, was admitted into Bellevue Hospital, 30th May, 1850. She states that she has always enjoyed excellent health, and presents no recognizable hereditary predisposition to disease. She has borne five children. About five years ago she first discovered a hard and partially movable tumor in the right iliac fossa, which has continued steadily to increase up to the present time. She has borne one child since the tumor was first observed.

At the time of her admission the existence of a firm movable tumor in the abdomen was recognized, and con-

sidered to be probably ovarian in its nature. At this time her general health was good, and, according to her statement, the catamenia were regular. During the following two months blisters were applied from time to time, and dressed with ointment of Iodide of Potassium, and at the end of this time it was thought that the tumor had slightly decreased in size. The patient had been also several times affected with tetanoid spasms depending apparently upon hysteria, and had also complained not unfrequently of *colicky pains in the bowels.*

Aug. 4th. Dr. Van Buren having assumed charge of the wards, to-day made an examination of the patient, and satisfied himself of the existence of a spherical tumor, about six inches in diameter, apparently fibrous in its nature, and containing no cysts that could be distinguished, and evidently connected with or consisting of the right ovary. It was found to be very movable, and its pedicle seemed to be long, and not very voluminous.

From the mobility of the tumor, and the slenderness of its pedicle, it was considered by Dr. Van Buren to be a case in which the removal of the tumor might become justifiable, in case of its rapid growth, unchecked by any other treatment. It was also discovered that the patient had a bloody discharge from the vagina, which had continued ever since her last menstrual period. This symptom led to the use of the speculum, which disclosed an ulcerated surface surrounding the os uteri, about the size of a twenty-five cent piece, partly granular, and partly ulcerated, with very evident loss of substance. Nitrate of silver was applied, and directed to be repeated weekly. Treatment continued as heretofore.

Aug. 24th. There has been no bloody discharge from the vagina since the first application of the nitrate of silver, except the natural catamenial flow, which lasted its usual time. The patient complains more frequently of *colicky pains, located especially in the right iliac region,* which are attributed to constipation of the bowels. She also demurs to the application of the blisters to the abdomen, and proposes to leave the hospital, as she has been informed that there is no certainty of her receiving benefit, except from an operation, which has not been urged upon her, as she is still able to follow her usual

occupations without very serious inconvenience from the tumor.

Aug. 28th. Patient was found at to-day's visit to be suffering from well marked symptoms of acute peritonitis, for which no cause could be detected. She had been complaining more than usual of the *colicky pains* within a few days past, which were not relieved by laxative medicine. The inflammation at present was thought to be of a local character, confined to the surface of the tumor and its immediate vicinity. The tenderness here was excessive; elsewhere in the abdomen it was not so well marked. Calomel and opium were directed internally, with a blister to the abdomen.

Aug. 30th. The symptoms of peritonitis seem to have yielded; there is a general improvement in her condition, and decidedly less abdominal tenderness. On examining the surface of the tumor a peculiar sensation of crepitation was detected, on gentle pressure with the pulps of the fingers, which was attributed to the lymph recently deposited between the tumor and the parietes of the abdomen. The tumor was also found to be firmly fixed in its position, and incapable of being moved as before the attack of peritonitis.

September 1st.—All evidences of peritonitis had disappeared, but to-day symptoms of intense enteritis have manifested themselves. She has frequent and profuse watery evacuations, occasionally tinged with blood, a pinched and sunken face, cold extremities, great thirst, and præcordial anxiety, and a thready pulse at 120. A blister was reapplied to the abdomen and dressed with mercurial ointment, and sulphate of morphia administered internally at intervals. The symptoms were kept in check by these means for several days, but there were no evidences of permanent improvement. Diffusible stimulants were employed, with nourishment in a concentrated form, until the 8th September, when she died exhausted.

Post-mortem examination, 12 hours after death.—The abdomen was opened by crucial incisions. The flaps thus made were found to be adherent, by their peritoneal surfaces, to the tumor, which was very dark in color, almost black, and at points greenish. The peritonæum in contact with the tumor was stained of the same color by imbibition. The omentum,

small intestines, and colon, wherever in contact with the tumor were adherent to it, and stained of the same color. These adhesions were torn through without difficulty, being evidently of recent deposition. There was no fluid in the cavity of the peritonæum, and no evidences of peritonitis except in contact with the tumor. On separating the tumor from its adhesions, which had thus fixed it in its position, it was found to be connected with the uterus by the right broad ligament, and in fact to consist of the right ovary. In the broad ligament, which was somewhat elongated, and the sole pedicle to the tumor, was a short, very tight twist, which was found to have been produced by the revolution of the tumor upon its axis one and a half times.* On the distal side of the twist a mass of very much distended (ovarian) veins were visible. Internally the tumor was deeply stained with blood, with which it was yet intensely congested; its structure was evidently fibrous, with irregular cavities throughout its substance (fibrous overgrowth of the ovary).

The mucous lining of the large intestines had evidently been the seat of intense inflammation; it was thickened, softened, and still intensely red from minute extravasations. The small intestines presented no morbid appearances, except in the first 18 inches of the ileum, where there were also numerous minute extravasations. There had been apparently excessive congestions of the bloodvessels throughout the whole intestinal canal, which had passed into true inflammation only in the colon,—the extravasations in the upper part of the ileum being the only traces left in the small intestines, of the existence of this morbid condition during life.

Remarks.—In reviewing the history of this case, it seems to me evident that the colicky pains complained of previous to the attack of peritonitis were caused by the twisting of the pedicle of the tumor, which, as the dissection proved, was no less than the right broad ligament of the uterus somewhat elongated by the traction resulting from the weight of the enlarged ovary.

* Mr. Daniels has represented the appearance of the parts so accurately in his drawing, that no farther description is necessary.

This twisting of its pedicle, by the turning of the tumor upon its own axis, was finally carried to such an extent as to interrupt entirely its circulation, as shown by its dark color, and the mass of distended ovarian veins just beyond the point where the twist was situated. The tumor in this manner became excessively engorged with blood, and the congestion thus brought about was probably the starting point of the peritonitis. The enteritis which followed, and proved the immediate cause of death, resulted apparently from contiguity of structure.

I have not been able to find any instances on record in which similar, or indeed any, serious results have followed the twisting of the pedicle of an ovarian tumor; nor have I met with any notice of its occurrence in any recorded case, except, singularly enough, in the case which I published in this Journal (Vol. IV. No. 2, March, 1850, p. 159), in which, in November, 1849, a tumor of precisely similar character was successfully removed by the large abdominal section. The twist was discovered in this case at the time of the operation, and I am not aware that its existence was manifested by any previous symptoms, although it had evidently continued for some time,—the tumor having contracted omental adhesions in its new position.

The practical inferences to be deduced from this liability to strangulation in the pedicle of a very movable ovarian tumor, of which we have thus two well marked instances, are, in the first place, inasmuch as the accident is manifestly capable of causing death, that an additional argument is thus furnished in favor of the removal of such tumors by operation, especially as these movable tumors with elongated pedicles present, under all circumstances, the most favorable cases for removal, not only on account of their mobility, but because they are also, most generally, non-malignant in their nature.

Again, in cases of this sort, where an operation may not be judged expedient, it is obviously proper to guard against the possible occurrence of strangulation in the pedicle of the tumor by rendering it as immovable as possible by the use of bandages for compression, or other appropriate means, and, above all, to avoid all manual interference with the tumor by which such an accident could be brought about. Neverthe-

less, in a case of movable tumor of this kind, where the frequent occurrence of colicky pains at a fixed point led me to suspect the probability of a threatened strangulation, I should not hesitate to attempt, (from the extent to which such tumors can be moved), by turning the tumor over on its axis as often as seemed to be required, to unwind the twisted portion of the pedicle, and thus avert the danger. It is also to be considered that a degree of strangulation, or twisting, might occur in the attachment of a tumor, not sufficient to cause death, but yet enough to occasion an amount of local peritoneal inflammation by which a previously movable tumor would be so extensively attached to the important organs in its neighborhood as to render its subsequent removal by operation unjustifiable.

It is worthy of remark that the present case furnished an example of a physical sign of peritonitis which, although alluded to by Chomel and other writers, is not perhaps sufficently often recognized. I refer to the sensation of crepitation, like that perceived on pressure of a bag of powdered starch, which could be distinctly felt over the surface of the tumor after the occurrence of the peritonitis, and which was evidently owing to the fibrine recently deposited between the peritonæum investing the abdominal parietes, and that covering the surface of the tumor.

Note.—It may not be uninteresting to the readers of this Journal to learn that the patient alluded to above, from whom I removed a large fibrous tumor involving the left ovary, in November, 1849, has since married, and is now enjoying excellent health, although she has not, as yet, conceived. It may be recollected that she suffered, before the operation, from *procidentia uteri* in an exaggerated form, and that this organ was comfortably retained in its place after the operation by a spherical caoutchouc pessary. The pessary was worn without the slightest inconvenience during the ten months following her recovery, when it came away spontaneously, and was never replaced. Since this period the uterus has remained in place without artificial means, although the patient is an active stirring woman. There is a circumstance connected with her case of no little interest in a physiological point of

view. It will be remembered that, in the original report of her case, it was stated that, although twenty-one years of age, she had never menstruated. I afterwards learned that the catamenia had made their appearance, vicariously, perhaps six or eight times in the course of her life, both in the forms of epistaxis, and of hæmoptysis, and also once by an oozing from the umbilicus. Within the month after the operation by which her tumor was removed the discharge made its appearance naturally, and it has continued to appear regularly every month since that period, continuing about two days, and unaccompanied by any unusual symptoms. I have seen her within a few days, for the first time during the past year (the greater part of which she has resided in the country), and satisfied myself with regard to the facts above stated.

It is a fair inference from this case that menstruation can occur naturally under the influence of one (probably) healthy ovary; the other is very certainly in my possession at present. It remains to be seen, if under such circumstances, pregnancy will take place. Probabilities are certainly in favor of its occurrence; in the case of Rosanna Shields, just related, one child was born after the disease of her left ovary was apparent, and cases are not wanting in which healthy children have been borne by women laboring under evident ovarian tumors.

121 *Bleecker-st., February 1st,* 1851.

ART. II.—*Remarks on Tetanus.* By EZRA P. BENNETT, M. D. of Danbury, Ct.

THE pathology of tetanus is perhaps as unsettled at the present hour, and its treatment as unsatisfactory and empirical, as it was a century ago, with perhaps a single exception, which is, that it is now pretty generally conceded to be a disease of the spinal system, of some kind or other. What that state of spinal system is, is yet a matter of dispute; different and conflicting views on this point have been advanced by different physicians, and still more diversified and conflicting (if possible) have been the modes of treatment adopted for its cure; but whatsoever

theories may have been advanced in regard to its nature, or whatever mode of practice may have been adopted for its cure, the result has been as a general thing disastrous in the extreme. Now and then it is true a case of tetanus has recovered, but whether from the efforts of nature or from the skill of the physician, it would be difficult to say; but the great probability is, that more cases have recovered from the former than from the latter, for where one case has recovered under a certain course of medication, ten or perhaps twenty succeeding cases have died under the same course of practice. I very much doubt at the present time, whether a single intelligent and experienced physician could be found, either in the United States or in Europe, who, if called to a case of tetanus, would not be very much in doubt what course of practice to adopt, or who would be very sanguine of success let him adopt whatever course he might. As empirical and unsatisfactory as the treatment of this fearful disease is, and has hitherto been, I see no prospect of improving it until its pathology, by close and scrutinizing investigation, shall be more perfectly understood. Until such time, there may be occasionally an escape from the disease, but there can hardly be said to be a cure. To accomplish this most desirable, and in my opinion indispensable object, two things are necessary: strict scrutiny of the phenomena of the disease while it lasts, and the morbid appearances after death, having strict reference to the fact whether the phenomena of the disease are such during life as we should expect and are known to result from the organic lesions which invariably produce such morbid appearances, and therefore whether the disease really exists in such organic lesions, or whether these morbid appearances are but the effects of the disease or the treatment pursued, leaving us still in the dark in regard to its true nature. I am fully aware that morbid anatomy of itself, in many instances, is of but very little importance, as it only unveils to us the ravages of disease (especially in chronic cases), and gives us no clue to the real nature of the disease itself. In acute cases, however, this objection does not hold, and by having strict reference to the relation which exists between the symptoms (as above stated) and the lesions which are found to exist, morbid anatomy may do much towards unfolding the

nature of disease. Alone it is worthless; as an adjuvant it is valuable. I therefore consider it the duty of every physician to ascertain, as far as possible, the morbid appearances in every case of tetanus which may fall under his care, and give the result to the public. Cases of tetanus have recovered under such opposite and conflicting modes of treatment, as to lead me to conclude that one of two things is absolutely certain, viz., that tetanus as it occurs in different individuals and under different circumstances is an entirely different disease; or else, in consequence of a vigorous constitution, individuals have triumphed over the disease and escaped death in spite of both the disease and doctor. My own opinion is that both of these are the truth. I believe that that train of symptoms which characterizes tetanus, occurs in different individuals and under different circumstances from entirely different states of the nervous system, and requiring a totally different course of medication for its cure. A want of discrimination in this respect, combined with a want of definite ideas of any kind in regard to its true nature, or I might, perhaps, with more propriety say, a want of discrimination depending upon or want of such definite ideas is, in my opinion, the fruitful cause of the fearful mortality which attends this disease. I will now proceed to point out, in as brief and concise a manner as possible, what I suppose to be the difference between these two forms of tetanus, and, so far as I am able, the treatment most applicable to each. In doing this, I would divide tetanus into the two following varieties, viz., centric and eccentric; the former depending upon an inflammation of the medulla oblongata and spinalis and their coverings, such inflammation being propagated along a wounded or inflamed nerve from one of the extremities or some other wounded part to the medulla oblongata or spinalis, producing true traumatic tetanus, or else induced by general causes, as exposure to cold, miasma, or translation of disease from some other part producing true idiopathic tetanus. I say that in both these forms of true tetanus, idiopathic and traumatic, be the cause producing them what it may, I consider the disease to consist in inflammation of the medulla spinal, extending generally to the medulla oblongata, and often in the last hours of life to the brain itself. Genuine traumatic teta-

nus usually occurs in about a week after the receipt of the injury, sometimes a little sooner or later, but as a general rule this is about the period of its invasion. The eccentric or spurious, or, as in many cases it might be called, the hysteric form of the disease, I consider to be a disease of irritation simply, and of a diastaltic character. It has no definite period of invasion, but generally comes on soon after the receipt of an injury, suddenly, without any premonitory symptoms. This suddenness of invasion so soon after the receipt of the injury, and without the usual premonitory symptoms, will generally be sufficient to distinguish it from the more fatal centric variety, and also to point out the appropriate course of treatment. It is most apt to occur in females and persons of delicate, irritable constitutions, and if a correct view be taken of its character, can usually be controlled by medicines, especially if taken in its early stage, before irritation has become inflammation; for if the disease be not checked in its early stage inflammation and death will generally be the result. To mistake it for the centric or inflammatory form and treat it as such, would be certain death, as depletion would be sure to increase the irritability and exhaustion of the nervous system. The treatment in this form should be sustaining and quieting; an emollient and opiate poultice should be applied to the wounded part if it is in a situation where it can be done; anodyne fomentations should be applied along the spine; the stomach and bowels should be gently evacuated by some correcting laxative, as rhei and soda or magnesia, and opiates and antispasmodics exhibited internally, in the selection of which the good judgment of the practitioner and the peculiarities of the patient should direct. Another thing which I should most strictly enjoin, in both varieties, is as absolute quiet as possible; every possible stimulus should be most sedulously avoided; I would exclude light, noise and motion, as far as practicable, for light or noise, or a heavy step, or the least movement of the patient or the bed is sufficient to produce a spasm. The exhaustion of the nervous system (which is the cause of death in tetanus) is in direct proportion to the frequency and severity of the spasms; hence every excitant of the spasms should be excluded, and when it becomes necessary to change the patient's

clothes or bedding, or dress his wounds, he should be put under the influence of chloroform. Under this mode of treatment, I believe many cases of spurious tetanus would recover, and under this course most cases of true tetanus would unavoidably die, as it would increase the difficulty it was designed to cure.

In tonic or centric tetanus, if called early in the forming stage of the disease, I should regard general and local depletion to be of the most essential service, especially if, on close investigation hereafter, the disease should be found to be seated chiefly in the meninges of the spinal system, for, next to serous tissues, in my opinion fibrous tissues are most benefited by venesection; and in this case, there are both of these tissues, which may and generally do suffer; but if the medullary portion of the spinal system should prove to be more particularly the seat of the inflammation—although bleeding might still be useful, I should not place so much reliance on it. If the disease had made such progress as to exhaust, in a measure, the nervous system, I would resort to local depletion only. I would apply leeches along the spine; I prefer leeches to cupping, because they do not produce so much irritation. I would give calomel and ipecac in emetico-cathartic doses unti the stomach and bowels were freely evacuated; I would then continue them in small and oft-repeated doses, so as to bring the system under its specific influence as soon as possible; when the violence of the disease was visibly checked, then, and not till then, would I resort to blisters and anodynes: great care should be taken that they are not resorted to too early, as they would then most certainly do mischief. When I did blister, I would dress the blistered surface with blue ointment, for the purpose of bringing the diseased parts more quickly and directly under the influence of the mercury. As in the other variety, I would use emollients to the wound, and if it assumed a pale and flabby appearance, as it is apt to, I know of no application better than balsam copaiva: chloroform in this form of the disease is inadmissible. In this, as in the other variety, I would insist on the entire exclusion of all stimuli, and enjoin the most absolute quiet. I cannot pass over this part of the treatment without saying that this idea was sug-

gested to me by that justly celebrated neurologist, Doct. Marshall Hall, whilst attending his Croonian lectures before the Royal College of Physicians, Trafalgar Square, London, in April last; he was at that time experimenting on frogs. When two frogs of equal size and vigor were made tetanic by the application of strychnine, if one was removed to a place where it would be perfectly quiet, and suffered to remain so for a few hours, it would perfectly recover; the other, left upon a table, and irritated with a probe or even a feather, would be thrown into spasms at every touch, and in a few minutes would be perfectly dead, its nervous system being completely exhausted. I have often repeated this experiment, and always with the same result. Hence it was inferred by Doct. Hall, that in tetanus and hydrophobia the same course might possibly be attended by the same happy result. I certainly think well of the suggestion, and believe I have very much alleviated the sufferings of one poor boy by this course, although it did not save his life. I am, however, well aware that a frog is not by any means a man, and that tetanus from strychnine is not tetanus as we usually find it at the bedside when proceeding from other causes; for, on the one hand, we have only to wait and the difficulty subsides; whilst, on the other hand, delay is death; yet, after all, the thing is worth a trial, as is every thing else which emanates from this truly great man. To know Marshall Hall is to admire him; to know him well is not only to admire him but to love him, for the soundness of his head is only surpassed by the goodness of his heart. I look upon him not only as the best neurologist, but as the best practitioner in England, if not in Europe.

In proof of what I have here advanced, I send you the history of a case of tetanus which recently occurred in my practice, and which terminated fatally on the fifth day.

CASE. Ichabod Marvin, a healthy lad of 13, had his left hand badly lacerated in a picking machine on the 11th of last March; the injury was not sufficient to call for amputation, and was dressed in the usual manner. The case progressed favorably until the 18th, just one week after the receipt of the injury, when he began to complain of not feeling as well as

usual; he passed a restless night, and on Tuesday, the 19th, I saw him, and found him laboring under well formed tetanus. Pulse 130, small and jerky, tongue slightly coated, white, could protude it but slightly between the teeth, said he had bitten his tongue during the night in consequence of the convulsive closure of his jaws, he had pain in the hand, along the arm and the back, especially between the shoulders, also at the epigastrium with tenderness on pressure, recti muscles rigid, head drawn slightly back, with slight opisthotonic spasms. I wish this train of symptoms to be well pondered and remembered, and that they had existed as the first symptoms of the disease, as they go most conclusively to prove that the pathological condition exhibited in the post-mortem, was not occasioned by the disease or the treatment, but existed from the very commencement of the disease, and constituted its very essence. In addition to the symptoms above enumerated, his urine was scanty and high colored, his intellect clear until within a few hours of death, a fact which proves another of Doctor Hall's assertions, viz., that a disease of the spinal system never produces cerebral symptoms so long as they do not extend beyond that system.

Treatment.—In regard to this, I can only say, I treated him as I would not another case of similar character, if I had one. I would here say, that even admitting the pathology to be what I have supposed it to be, that I have but little confidence in any course of treatment in true tetanus, as we cannot by any means in our power (as a general thing) subdue the inflammation before the nervous system is so exhausted as to make death inevitable. The spinal system is not only exhausted, but the brain also. The brain in this complaint suffers secondarily. Although the spinal system is entirely distinct from the cerebral in some respects, and exhibits perfectly distinct and independent physiological and pathological phenomena, yet it is to a certain extent, notwithstanding, most intimately connected with it. Though its acts are distinct, its power of action is in a great measure derived from and dependent upon the brain. This fact I have repeatedly proved by experimenting on tetanic frogs where the spinal marrow had been divided; it will be found that that part of the spinal

marrow connected with the brain is not so soon exhausted, and when exhausted sooner recovers its power of action than that part of the animal below the solution of continuity of the spinal marrow. Any one can satisfy himself of this fact by repeating this experiment. But to return from this digression to the treatment of our case. I gave him two teaspoonfuls of morphine, 10 grs. to the oz., 20 drops of the same with the same quantity of chloroform to be repeated every two hours, the spine to be rubbed with extract cannabis Indica, chloroform by inhalation pro re nata if the spasms increased. At evening gave 20 gs. calomel. Wednesday, 20th, had rested pretty well during night, but is no better; bowels to be moved with sal Epsom, and one drop of tinct. strychnine, 3 gs. to the oz. to be given with 20 drops of morphine every 4 hours; spine to be rubbed with strong ammonia. Evening, bowels moved freely, pulse 140, spasms moderate; could not take medicine very well; ordered laudanum and turpentine by injection, in full doses, every 4 hours, emollients with bals. copaiva and laudanum to hand, and the strictest quiet enjoined; chloroform when hand was dressed or clothes changed. Thursday, 21st, symptoms all increased slightly; the same treatment was continued with the exception of the strychine, which was omitted, and wine whey given as freely as possible. On Friday, 22d, he died.

On Saturday I examined the brain and spinal marrow; I did not examine the other parts of the body for two reasons. In the first place, I had not sufficient time; and secondly, the symptoms were so purely spinal, that I did not deem it necessary to seek for morbid appearances elsewhere. I laid open the spinal canal to about the first lumbar vertebra, and removed the spinal marrow together with the oblongata and brain. The venous circulation of the brain was deeply congested, owing undoubtedly to the spasms of the muscles of the neck preventing the free return of blood from the brain; the inner surface of the dura mater was of a deep rose color, and in places was slightly adherent to the pia mater. The pia mater was highly injected, more particularly on each side of the falx and over the posterior lobes of the cerebrum and cerebellum; the cineritious portion of the brain appeared normal, but the medullary portion presented more red points in its substance

than I have been in the habit of seeing in healthy brain. The pia mater covering the pons varoli, medulla oblongata and spinalis (especially in that enlarged portion of the cord which corresponds with the origin of the brachial nerves), was very highly injected; the cord was of a rose color. The thecæ vertebralis was highly injected, and adherent to the pia mater by a copious plastic effusion. There was no effusion in the vertebralis. The question now arises, Were those lesions the effect of the disease or of the treatment, or were they the disease itself? As regards myself, I can say I do not entertain a single doubt upon this subject. I believe this case of tetanus, at least, was caused by an inflammation of the medulla oblongata and spinalis, and my reasons for so thinking are because all the symptoms of such an inflammation were exhibited in this case from the commencement of the disease.

He firstly complained of malaise, then pain in the hand, extending up the arm, of a severe character; also of pain in the back, with tenderness between the shoulders, and that peculiar pain at the epigastrium, so characteristic of this disease, and which is nothing more than a neuralgic pain produced by irritating the spinal marrow. Every practitioner is aware how may pains in the side, chest, and abdomen, proceed from a tender spinal marrow. There was also white coated tongue, high-colored and scanty urine, with that quick, irritable, jerky pulse, so characteristic of the mucous surfaces and of nervous exhaustion. Now when we find, after such a train of symptoms, a corresponding pathological condition of the spinal system, we cannot doubt for a moment but that this phlogosis of the spinal system constituted the true essence of this disease. I am willing to admit that no positive deductions can be drawn for a single case, but this case does not by any means stand alone, others have found the same appearances and drawn the same conclusions from them as I have; to say the least of it, morbid appearances have certainly oftener been found here than anywhere else, unless the patient has died so soon after the invasion, from spasm of the glottis, or from sudden exhaustion of the vis nervosa, as to leave no traces behind them. We all know that there are diseases of such violence as to prostrate the nervous system at once. No reaction takes

place, and scarcely any traces of the disease remain. This is the case in cholera, which I take to be a disease of the nerves of organic life, or rather, perhaps I should say, it is a disease the poison of which acts more particularly on this system of nerves, and often extinguishes life, as it were, at a blow. The object of these remarks is not to establish positively the pathology and treatment of tetanus, but to call forth investigation. If it does this, my object is accomplished.

ART. III. *Case of Rupture of the Bladder, supervening upon an injury over the Abdomen, and followed by death: With a report of the trial, and medico-legal observations on the same.* By JONATHAN KNEELAND, M. D., Hon. Member of the New-York Pathological Society, etc., etc.

THE following case of death supervening upon an injury over the abdomen, with the sequela, is possessed of sufficient interest to warrant publication in a Medical Journal.

I was summoned hastily on the night of Dec. 18th, 1849, to Ashbel Baker, a muscular blacksmith, 29 years old; was told by the messenger he had been hurt in a scuffle. I found him on a bed lying on his back, his knees drawn up, his head raised by pillows, countenance expressive of agony, groaning with each respiration in the subdued tone, so characteristic of abdominal anguish. His first word to me was, "Dr. have you got your thing to p—ss me." I sent for my catheter nearly two miles. On examination I found his pulse weak and fluttering, his extremities cold, and the least motion or friction of the cold extremities, caused an increase of pain in the belly, upon which and between the epigastrium and umbilicus, was a red spot or strip of cuticle, of a bright crimson color, commencing an inch above the navel, and extending upward to within about two inches of the cusiform cartilage. Pressure over this spot, or any part of the abdomen caused an increase of pain; we closed the windows, which blew directly across him a keen December blast; applied hot cloths to the extremities and fomentations to the abdomen, gave him morphia in warm drink, and reaction soon came on; bled him to partial faintness, from a large orifice. "Let it run," said he;

"I feel easy now." But pain returned as his faintness subsided. When the catheter came, I drew off a few ounces of bloody urine, which partially relieved his distressing anxiety to urinate; "he had not emptied his bladder in some hours," he said, "and was starting to do so, when the injury was received." In about two hours I left him, having got him somewhat quieted with anodynes, fomentations, and rest; was sent for again the same night, the messenger stating, he says, "you must come and use the catheter again, he can't live so."

Dec. 19*th*, at 7 o'clock A. M., I arrived; and drew off about a pint of clear urine; some small clots of blood followed the instrument on its withdrawal; his pulse was very full, over one hundred beats a minute; groaning still, and not inclined to talk, except in the fewest possible words and only concerning his sufferings and means for relief from agony; I should have before stated that the injury sobered him completely; "he had got so he felt pretty keen" when hurt; on this morning (19th), a distressing tenesmus being complained of, I gave him mucilaginous enemata, which emptied his lower bowels of consistent healthy looking fæces, bled him again, ordered fomentations to abdomen, and anodynes; visited him again at noon, and at night of 19th, and used the catheter, the last time unsuccessfully; the urine started on first passing the instrument, but stopped abruptly as though something obstructed the eyes of the catheter.

Dec. 20*th*. On this morning I drew off more than two quarts of clear straw-colored urine, which relieved his distress more than any previous urination. Ordered castor oil, a large spoonful, elixir paregoric, thirty drops, to be repeated once in four hours until the bowels moved, omitting morphine and using drink sparingly. Since the injury his thirst has been intense. In a few hours he vomited the oil; injections were used which brought but little away with them; in passing the catheter (a curved silver one twelve and a half inches long) this morning, having failed to get the urine by the ordinary manœuvre, and finding no resistance to its farther progress, I passed its point upward and forward, sliding the penis upon its external end, and directing its point by aid of the rings towards the right side of the abdomi-

nal cavity, until not more than three or four inches of the free end of the instrument remained without the body, the urine then flowed freely. I was obliged to resort to the same expedient when I used the catheter afterwards, in order to reach the urine. On the evening of the 20th, learned he had voided his urine himself during the day, but nothing had passed his bowels.

Dec. 21*st.* I saw him pass water this morning, his feet on the floor, resting on the balls, his hips resting against the edge of the bed, his body leaning forward, his hands pressed upon the abdomen; on drawing in a full breath, and bearing down forcibly, urine started in a full stream; when he expired the stream would stop, and on making a full inspiration would again start in a full stream; he complained of its hurting him over the bowels, and being "very hard work." About noon of the 21st he was removed on a bed in an easy wagon, two miles from the inn where he received the injury, to his own home; complained that night of soreness over the abdomen, and great increase of pain, and could not void urine by his own efforts; said "it hurt him so dreadfully to strain he could not." Complained of being severely hurt by the passage of the catheter, after it slipped into—where the bladder should be;—this day, contemplating his removal, anodynes had been freely used; his pulse was smaller and more jerking, about 130 per minute. The night of 21st, ordered castor oil and oil turpentine (which was vomited in a few hours), a blister to the abdomen, and injections of turpentine in an emulsion of yolk of egg.

Dec. 22*d.* Finding his bowels had not been moved, and the injections had passed away unchanged, ordered cal. ten grains, morph. one grain, to be repeated once in four hours. Evening of 22d, vomiting stercoraceous matter, belly distended; the passage of the catheter gave great pain; urine high colored and offensive.

Dec. 23*d.* Vomiting continues, preceded by the same kind of nausea, which seems to start *below* the stomach, and is so distressing a symptom in many cases of strangulated hernia; a rolling of the bowels which could be seen and felt would come on, as if a serpent were uncoiling himself within, and then

what should have gone the other way would be ejected violently from the stomach; this continued at intervals of a few hours, until a short time previous to his death. Dr. Bartlett of Skaneateles saw him this day at my request; his desire to urinate was *constant, and not relieved by the catheter*, and also a distressing tenesmus, and both these symptoms were continued until death.

Dec. 24th. Dr. Cowles of Marcellus, and Dr. Bartlett of Skaneateles, saw the patient with me; at their suggestion blisters to the abdomen were repeated, and they expressed some hopes of his recovery, from his having been able to void his urine some part of the time since his injury, and from his pulse having become slower within two days—it having fallen from 120 to fewer than 100 beats per minute, it had also become full again, and was not irregular or intermittent; his pulse continued slower, having fallen below 90 on the evening of the 24th and morning of the 25th. In the collapse preceding dissolution it became irregular, but not perceptibly more frequent. On the morning of the 24th I passed the catheter, when he complained severely of its hurting him, saying, "let me die with it all in me, I can't have it passed through there any more." An offensive urinous odor about him for the last two days. On the 25th a little urine was forced away by his own efforts in the morning; afterwards it dribbled away in the bed during the last few hours of life.

The salts and senna which were ordered by Drs. Cowles and Bartlett on the 24th were repeatedly vomited after being retained a few hours, three full doses having been given; his intellect was unaffected, the morphine not seeming to narcotize him in the least, and excepting for the first three days not having bridled the pain. On the evening of Christmas, at about seven o'clock P. M., he died, in three hours less than seven days from the time of his receiving the injury. I should have stated before that his breathing was thoracic during the whole time, and most of the last three days laborious. He seemed to work hard at breathing, and expiration was attended throughout by a suppressed groan, no râles were audible in his lungs; distress referred to the pelvic region for the last two days, and less tender on pressure over the umbili-

cus; horripilation occurred eighteen hours before death, and extreme restlessness for twenty-four hours previous.

Post-mortem examination twenty-two hours after death.—Muscles rigid, abdomen tympanitic; I made an incision from the ensiform cartilage to the crest of the ilia on both sides, and turned down the flap over the pubes; the integuments were thick, and the peritoneal lining appeared of its natural color; only a very little liquid in the cavity of the abdomen; no perceptible urinous odor; color of the intestines a dingy pink, or dirty white color on their serous surface; the omentum at its lower edge, and its vessels, and those of the mesocolon, were full of dark blood; bowels distended with flatus and liquid; I punctured them at several points, to allow the escape of gas, and diminish their bulk; some liquid fæces escaped from the punctures, of a dirty dark color; I pressed a cloth in the cavity of the abdomen and pelvis to absorb it, and, on withdrawing the cloth from the subpubic region, there adhered to it, some portions of a lemon-colored pulpy substance, in appearance softened membrane, or cellular tissue, of a much lighter color and more hard consistence than the liquid fæces mentioned above. I then passed a ligature around the cardiac orifice of the stomach, another around the rectum; having diagnosed ruptured bladder, and being anxious to settle the fact, was nonplussed at finding *no bladder* when I lifted the intestines from beneath the pubes, for the purpose of tying the rectum, preparatory to removing the intestines from the body. After removing the intestines, I looked for the bladder, and found nothing left of its natural organization, except the neck, to the left side of which adhered shreds of softened membrane, the largest and only unbroken remnant of this was about three inches long by two wide, but jagged and irregular in outline; on holding this between my eye and the light, I observed the ramifications of a bloodvessel, which from its color and structure appeared to be a small artery and its minute branches, and which terminated abruptly at one edge of the soft remnant under examination; this I judged to be the remains of what was once the bladder. Continuous with its edges, and loose in the pelvic cavity low down, was the same lemon-colored material which was before mentioned as having adhered to the cloth. I then

felt an organized mass in the pelvis, below and behind the yellow macerated membrane, cut it out as low as possible, and on its removal found it to be a portion of the rectum below that which I had cut on removing the intestines; I found the commencement of the urethra at the lowest point occupied by the softened substance. I then examined the kidneys, which were large and vascular, but healthy in structure and appearance. I then traced both ureters from their origin in the kidneys until they terminated in the pulpy mass—the color of this was in no part or spot brown, or black, but of the color and consistence of the adipose of the horse, partially softened by gentle heat—more coherent and firm than pus.

The intestines were next examined. Colon and rectum empty; in passing them between my thumb and finger, from the rectum upward, I found, a short distance above the ileo-cœcal valve, in the ileum, a mass about two inches long, hard and unyielding; I then passed them through my fingers in the same way from the stomach downward, until I forced some of the liquid fæces, which did not escape from the punctures (before made to allow the exit of gas) to the same mass through which they would not pass; I then opened the bowel above the barrier, and passed my finger down until it encountered a complete closure; directed an assistant to do the same, with the same result—the gut was slipped into itself for an inch or more, and was firmly closed. Below the intussusception was a small mass of excrement, formed by and filling the bowel for about two inches, in appearance like that which came off by the aid of injections the morning after the injury.

The mucous membrane of the stomach was of a dirty red within the larger curvature, and the whole stomach vascular, but no abrasion or ulceration of the mucous lining was observed; the bowel at the point of intussusception was vascular and thickened, but not black or softened; no examination of the thoracic or cranial cavities was made.

This is substantially the history of the case, copied from notes taken during the seven days Baker lived, and the post-mortem appearances, as written down directly after the examination the same evening. Its publication has been delayed to

give time for the results of a legal prosecution which grew out of it, to transpire.

Some time in the month of January, 1850, the widow of Baker and his brother having been appointed his executors, commenced a prosecution for civil damages against Mr. Chas. Bailey, of Otisco, in this county; he was charged in the indictment brought against him, "with having caused the death of Baker, by a kick or blow of the knee in the abdomen, in the bar-room of the inn kept by Robert Mead in Marietta, on the evening of Dec. 18th, 1849." The trial was set down to come off before the Circuit Court held in Syracuse on the 15th of June last, and witnesses were subpenaed in attendance, but owing to informality in summoning the jurors, the cause was not tried until the October term of the Circuit Court, before his Honor Philo Gridley, one of the judges of the Supreme Court, Messrs. Sedgwick and Outwater counsel for the plaintiffs, and Messrs. Noxon and Kennedy for the defendant.

The defendant's counsel moved to quash the proceedings, "on the ground that this case did not fall within the meaning of the statute, upon which the prosecution was based, viz., the statute under which damages are obtained of railroad companies and steamboat owners for injuries received by passengers, &c.; they contended that this statute (chapter 450, laws of the State of New-York, 1847, entitled "An act requiring compensation for causing death by wrongful act or default;" passed Dec. 13th, 1847, amended by chapter 256, laws of 1849) and its amendment, passed the next year, were not intended to apply to cases where an injury or death should be caused accidentally by an *individual*." His Honor the Judge said "he would not take the responsibility of deciding that the statute in question did not cover the case in court, that the trial might proceed, and if the counsel for the defence chose to carry the case before the full bench of Supreme Judges, on an appeal, they might raise this point of objection to the present proceedings." The witnesses were then sworn, four of whom on the part of the prosecution testified, in substance, that Bailey, Baker, and many others were together in the bar-room after the shows were concluded;* that they saw Bailey and Baker to-

* A sham African band of *blackened* whites, with banjos, triangles, and tambourines, and *sentimental* songs.

gether, and saw Bailey take hold of Baker's shoulders, draw him towards him, at the same time bringing up his knee "towards" or "into" or "near" "his belly," or the "pit of his stomach;" that Baker said, "Charley, you've hurt me," and went out of the room, into the open air, complained of faintness, and was soon carried above and placed on a bed; these witnesses saw no signs of anger, but both Baker and Bailey felt good-natured and keen; that Baker told Bailey he had hurt him bad, that Bailey said he didn't mean to, or "didn't know as he did."

The defence called on six witnesses, who were in the bar-room at the same time, who swore they did *not see* Bailey bring up his knee; did not hear Baker complain until some minutes after they were seen together in front of the bar. Some of them also swore "that Baker said to Bailey, 'Charley, you did hurt me, and if I had strength I could convince you of it; but I know you did not mean to, and if I die I shall not blame you." The counsel for the plaintiffs here said "they did not pretend or desire to prove that the injury was intentionally caused, or that any ill-feeling existed between the parties."

But one medical witness was called by the plaintiff's counsel. The reader has the substance of his testimony in the foregoing history and autopsy of the case; in passing, however, it may be proper to state that Judge Gridley permitted him to refer to his notes, taken at the time, and also allowed him, on his cross-examination, to explain why he opened the body without the aid of other physicians, in a case of so much importance, viz., "because he sent messengers for Drs. Cowles and Bartlett, and after having sent messengers a second time, while waiting their return, proceeded to make the examination, at the earnest request of the relatives of the deceased, and that the second messengers having returned unsuccessful, he completed the examination alone.

On the part of the defence, Dr. Hiram Hoyt, of Syracuse, being called, swore "that having heard Dr. Kneeland's testimony, he had made up his mind that Baker had died of peritoneal inflammation, or of intussusception, or of a bruise on the abdomen—his bladder could never have been dissolved

in that way—it never did and never will happen; no case on record, nor never will be, in which the bladder was softened —a man would die several times over before such a thing could occur." Dr. H. said "he never saw a case of ruptured bladder; had practised 30 years; had read of cases; a man could not make water with ruptured bladder; Kneeland could not have got 'more than two quarts of urine at one time,' unless he tapped the man; if bladder had been ruptured the urine would have been infiltrated in the cellular tissue in the pelvis, and very little, if any, would be drawn off by the catheter; the ureters wouldn't have reached the bladder, if it had been softened in that way; if bladder had been gone, water couldn't have passed through the urethra: if Dr. Kneeland passed his catheter through a rent in the bladder, he might have reached a little urine in the pelvis—not much, for the catheter would pass too high to reach it; during seven days' inflammation some matter might have formed in the pelvis which Kneeland mistook for softened bladder; don't think, from Kneeland's testimony, he found the bladder at all; the bladder collapsed, after death, would not have been noticed *unless it was looked for*; if gangrened, it would have turned black, but would all remain in situ."

10*th*.—On cross-examination Dr. Hoyt testified, "That the Boston Medical and Surgical Journal was excellent authority, that he took, but did not read it, he was so busy."

Being called up again by counsel for the defence, he said—"The Medical Journals were not very reliable authority; any body could write out a story, and, however incredible, secure its publication in the Medical Journals; that standard authors were the only reliable authority in medical matters." In answer to counsel for the plaintiffs, he said he had not read "Coulson on the Bladder," "Willis on Urinary Diseases," "Colle's Surgical Lectures," "Miller's Principles and Practice of Surgery," and only mentioned "Samuel Cooper's Surgical Dictionary" as reliable authority in relation to ruptures of the bladder; he treats fully on the subject, and can be credited. Standard authors take most of their cases from the Medical Journals.

The defence next called Prof. A. B. Shipman, of Syracuse,

who testified in substance, "that having heard the medical testimony on the part of the prosecution, it struck him as being a singular case—rupture of the bladder is rare—the complication with intussusception still more infrequent—the termination by softening uncommon, but not improbable, or incredible—the symptoms, as urinating, having the water drawn off with the catheter, the quantity drawn at once, all seemed to him consistent with the idea of a large rent in the first place, with subsequent inflammation, and softening of the torn viscus. A blow over the pit of the stomach, if directed downward, might rupture a full bladder; in his opinion the man died of rupture of the bladder, the event having been accelerated by the intussusception; the man might have forced out urine by contracting diaphragm and abdominal muscles, before tenderness of peritoneum, resulting from inflammation, should arise to forbid it, and after the hurt of abdomen was mitigated by anodynes and rest."

Dr. Hiram Eastman, called by the defence, swore "that he saw Baker on the day after the receipt of the injury; saw urine which Kneeland had drawn off that morning—more than a pint (in his opinion), clear, healthy urine; saw the red spot, looking like a bruise, below the pit of the stomach; that Kneeland told him then 'that he thought from the symptoms the night before, Baker's bladder was ruptured, but that from the clearness of the urine now, he had hopes it would not prove to be the case.'"

Dr. Isaac Morrell, of Borodino, testified in substance, "that the bladder's having been dissolved was a new idea to him; don't think the patient could live long enough for it to take place. If there was no bladder, or if it was ruptured, the cavity of the abdomen might be reached easily with a catheter, and would hold a quantity of urine; if the man never had a bladder, might pass urine by his own efforts, but not if the bladder was torn, as the shreds would dam up the opening of the urethra; 'twould take a hard blow to rupture the bladder; the blow must be over the full bladder to do it, not over the stomach; am not willing to say a man couldn't no how void urine under the circumstances; an *opinion* against what *another man has seen* is worth nothing: intussusception might be

caused by dissipation, or hard work, but a man wouldn't go two miles to shows with an intussusception in him ; bowels wouldn't be as likely to soften as torn bladder, the laceration of which would diminish its vitality; couldn't urinate through the softened fragmenets of the bladder, I should think."

The counsel for the defence proposed to show that Baker's death might be produced by other person or persons, or by other cause or causes, than those stated in the indictment, and claimed by the plaintiffs' counsel, to which his Hon. the Judge objected, and the cause rested. The counsel did not sum up on either side, and Judge Gridley having briefly charged the jury "that if, in their opinion, the injury was proved to have been caused by Bailey, whether by accident or intention was not material, which resulted in Baker's death, they must give a verdict for the plaintiffs. That the medical testimony on the part of the plaintiffs had sworn to facts and appearances which to his, the witness's opinion, were sufficient to account for death, as having been caused by the injury proved by four other witnesses. That Dr. Hoyt's opinions must be weighed by the jury, for what they might seem worth, against facts, as seen and recorded by the medical attendant of the deceased, sustained as these facts were by the testimony of two physicians, as being, in their opinion, creditable and probable. The jury, after being out an hour, brought in a verdict of $500 for the plaintiffs.

P. S.—The defendant's counsel have since made out their papers for carrying the case up by appeal, to the Court of Appeals, on two grounds, 1st, that this case does not come within the statute ; 2d, that they were not permitted to show other cause or causes for Baker's death.

Remarks.—There are a few points of practical importance upon which this case may throw some light. 1st. Are not the symptoms of rupture of the bladder sufficiently distinctive to warrant a positive diagnosis? I answer, they are. The only diseased conditions with which this lesion is liable to be confounded, are retention of urine from strictures, paralysis, enlarged prostate, or spasm : the form of the hypogastric region, together with the history of the case, and the diagnostic signs

and symptoms, would easily aid in distinguishing retention from rupture. Suppression from kidney disease would lack the urgent desire to void urine which attends rupture, and would also be accompanied by its own distinctive signs.

Rupture of the colon, or other intestines, might result from the same cause with rupture of the bladder, and like urgent distress and symptoms of prostration would rapidly ensue; and a case might occur wherein from the condition of the patient, or the nature of the injury, no light could be obtained from a history of the case; but the progress of symptoms for a few hours, aided by the use of the catheter, would soon remove all doubts.

In the records of twenty-eight recorded cases, I find that the desire to urinate was early an urgent symptom in most of them; this, taken together with the fact, that in nearly every case the bladder was full at the receipt of the injury, and the flatness of the hypogastric region directly after and while the desire to pass water is urgent, will materially aid in distinguishing this from other lesions within the abdomen. In many of the recorded cases, the patients were able to void urine by their own efforts, but in no one, I think, immediately after the injury, or until after a catheter had first been used. The power to void urine will be present in only those cases where the rupture is small, so that compressing the abdominal viscera by voluntary efforts down upon the bladder shall close the opening wholly, or in part; or in cases where the opening is very large, and through the fundus into the peritoneal sac;—nor will the ability to urinate continue in any of those rare cases wherein softening may occur, after it has progressed so far that the dissolved bladder shall obstruct the urethral orifice.

In Baker's case the direction of the force which caused the rupture, must have been from above, backward and downward; let one man seize another firmly by the shoulders, and no resistance being offered by the second, jerk him forcibly toward him, at the same instant raising his knee, the abdomen of the second will be met by the knee of the first, its muscles relaxed by the motion, and if it contain a full bladder, and the jerk be forcible, rupture will ensue;—the red strip of cuticle, lasting two days, showed force sufficient, and the rupture was doubtless thus produced.

Miller, in his Practice of Surgery, says, "the bladder has been ruptured by the superincumbent weight of another person; and my opinion is, that were the experiment to be fairly tried upon ten persons—I know of no crime deserving so dread a doom—they having bladders full of urine, and being in the relaxed, unsuspecting state of partial inebriety, the knee of the executioner being sufficiently raised and the muscles of his upper extremities then suddenly contracted, rupture would follow in nine of the ten."

Was the intussusception caused at the same time, and by the same force? The symptoms go far to prove it was, or at any rate that it supervened rapidly as a consequence. The second seems to me more probable. The external mark,* if, as I have above supposed, from above downwards and backwards, would indicate the promontory of the sacrum as the point upon which the force would impinge: a point of intestine, crushed between the spine, and the force would doubtless be deprived of its peristaltic power; its contractility, the intestine from above contracting by its natural motions, would gradually (perhaps) slip into the part injured, and the peritoneal inflammation which arose on the third day would fasten it there: the intestine immediately below the closure was unable to expel its contents, from the action of both its longitudinal and circular fibres being arrested by its proximity and attachment to the injured part.

If peritonitis came on about the third day, what proofs of this did the autopsy furnish? Serous membranes pour out serum in certain inflammatory states, and the peritoneum, torn asunder by rupture of the bladder through its fundus, was "a shut sac" no longer; the serum could, and doubtless did flow off with the urine; the cavities of abdomen and pelvis became continuous; the cavity, from pubes below to the diaphragm above, became a common receptacle for urine and serum—the urethra a common outlet. How far the contact of urine with the serous membrane of the abdomen modified its secretions, and restrained the effusion of lymph, let pathologists decide.

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* No ecchymosis remained after this spot disappeared, which was within two days, neither was the belly more tender here than elsewhere.

What were the causes of softening in Baker's case, a result extremely infrequent?

It is well known that persons of vigorous constitutions, and uninterrupted previous good health (which was the case with B.), if addicted to intoxication, bear injuries illy. Astley Cooper notices the rapidity with which injuries apparently trivial run into grave inflammation, and terminate in gangrene in such subjects. The intussusception, by the wearing anguish attending it, and not less by leading to the retention of excrementitious matters, and consequent necræmia and lowering of the vital powers, augmented greatly the tendency to death by asthenia, and the softening or sloughing of injured parts, which precedes and attends that mode of dying. How far the maceration of the torn bladder in urine, its vitality being lowered in common with all the solids, and still more by its mechanical disruption, influenced the termination in yellow softening, let others decide; and also whether at death it would have been found as soft as twenty-two hours after. My opinion, gathered from the symptoms at the time, is, that softening commenced with the rigors eighteen hours before, and continued after death.

In conclusion it may not be amiss to refer the reader to the following authorities:

MILLER's Practice of Surgery. COLLE's Lectures on Surgery. TAYLOR's Medical Jurisprudence. COULSON on Diseases of the Bladder. DRUITT's Surgery. CHELIUS's System of Surgery. HEWITT in London Med. Gaz. and N. Y. Journal of Medicine. PENDLETON in Charleston Med. Jour. and in Boston Med. and Surg. Journal; also various cases in Amer. Jour. of Med. Sciences.

Borodino, Jan. 24th, 1851.

ART. IV. *Report of Cases occurring in the New-York Hospital, with remarks on Cod Liver Oil, and Coup de Soleil.* By FREDERICK D. LENTE, M. D., Resident Surgeon.

CASE I. *Secondary Syphilis, Arteritis, Incipient Gangrene. Recovery under the use of Cod Liver Oil.*

SARAH MARIA COLE, aged 19, a native of New Jersey, very beautiful, and apparently enjoying fair general health, was admitted under Dr. Rodgers, January 4th, 1850, with a small secondary ulcer on both legs, just above the internal malleolus of the left, and several inches higher on the right. The his-

tory of the case, which is by no means an uncommon one in our city, is this;—patient was married, a little more than a year ago, to a villain, who, after removing her to the distance of several hundred miles from her home and family, and implanting in her system the seeds of a terrible malady, deserted her. The primary ulcers were healed in the course of a few weeks, but, in the course of five or six months, secondary symptoms presented themselves in the form of small copper-colored ulcers on the legs, and these have existed to the present time; the ulcers are not much inflamed, but are very irritable. She has been under the care of a physician, and has had some constitutional treatment; has never been salivated. Patient is of a very mild disposition, and of not very strong mind; has always enjoyed fair, but not robust health, which, as yet, does not seem to have succumbed much to the disease. *Treatment.*—Directed a pill composed of hyd. bi. chlor. gr. $\frac{1}{8}$, opii gr. $\frac{1}{4}$, guaiac, gr. i, to be taken three times a day, to drink decoc. sarsaparillæ, O. i. daily, farinaceous diet; ulcers dressed with ungt. strammonii.

Jan. 29th. The ulcers have nearly healed. Has now syphilitic nodes along the course of both ulnæ, which are quite painful. Apply tinct. iodine, and take potassii iod. grs. v. ter. die. Stop pills. March 7th. The ulcers on the legs, which had been healed for two weeks or more, have opened again, and are painful; nodes have not increased in size. Patient's constitution is beginning to give way. Ordered nourishing diet; apply lot. plumb. acet. to ulcers, and continue medicine.

May 10th. Since last date, patient has continued gradually to decline in health and strength. The ulcers remain in statu quo. There is to-day considerable febrile excitement, and violent headache. An ulcer has appeared in the right groin similar to those on the legs. May 15th. Febrile symptoms continue. Patient suffers from violent nocturnal headache, and the scalp is very tender to the touch. The ulcers are so exquisitely sensitive as scarcely to admit of being touched. Have had various treatment; ordered, as an application ℞ cerat. simp. ʒ i sol. plumb. diacet. ʒ ssm. Complains of tenderness along the ligamentum nuchæ. Ordered a blister to the

part. May 20th. Febrile symptoms have subsided, and they are again cicatrizing. Patient is constantly declining in strength, and is becoming much emaciated; appetite poor. The constitutional treatment has been repeatedly varied to suit the varying symptoms. Is now on tonics, mild stimulants, and as strong diet as can be taken. Directed to-day, as a tonic and alterative, acid. nitric. qtt. iv. ter. in die, the dose to be gradually increased. Pulse is 130, and feeble.

May 31st. There has been some improvement lately in the symptoms, though the emaciation and etiolation seem to proceed. June 4th. Is much worse, emaciation is extreme, having nothing of the appearance of her former self. The skin, especially about the hands, feet and legs, has assumed a mottled, purplish color, and the great toe and second toe of both feet are of a livid aspect, and excessively tender to the touch. There is also severe pain on pressure over the course of the anterior and posterior tibial arteries of both legs, and slight pain along the femorals. Directed a number of small blisters to be applied along the track of these vessels. Opiate poultices to the toes to relieve pain; has full anodynes at night. June 10th. The little fingers have assumed the same appearance as the toes, and are very tender to the touch; the pain is sometimes relieved by tinct. aconite, sometimes by a morphine poultice. Repeat blister to leg and thigh, and apply them along the course of the brachial and radial arteries, which are painful on pressure. June 20th. The symptoms of arteritis are subsiding, and the toes have assumed a more natural appearance, and are much less painful. The bulb of the little finger of the left hand has sloughed, exposing the bone. June 30th. Has erysipelas of left leg and foot. July 2d. The erysipelas has been subdued, but patient is evidently sinking; pulse very small and frequent; has occasional hectic, and profuse night sweats; is scarcely able to retain any solid food on the stomach. July 5th. Two sloughs have been formed on the dorsum of foot about the opening which had been made to evacuate a collection of pus. Irritability of stomach has increased. Takes but little nourishment. Directed to-day small doses of the ol. jec. asselli in the froth of porter as an experiment.

July 10th. Contrary to expectation, patient has been able

to retain the oil on the stomach, though with much difficulty at first, and is evidently improving under it. There is less irritability of the stomach, she is able to take her food better, and has been troubled less with night sweats. It should have been noted that a drop of creosote was added to each dose of the oil, of which she now takes half an ounce three times a day. Aug. 1st. Is steadily improving, and is gaining flesh slowly. Is now able to sit up in bed, and has a good appetite, being able to eat the used diet. Cont. med. Has no secondary pains, and the ulcers of the legs have nearly healed.

August 15th.—Patient is now out of bed and walking about; she has now something of the appearance which she had upon admission into the Hospital seven months ago; a faint blush of health is appearing on the cheeks. Her mind, which sympathized with her shattered frame, is regaining its tone, and there is strong ground for hope that the grave will, in this instance, be shorn of a victim by the power of medicine. Sept. 3d. Has continued the medicine to this date, and the improvement has been constantly progressing; having an opportunity to go into the country, she is advised to do so, and is to-day discharged.

Remarks.—The above case has been introduced mainly to illustrate the wonderful influence which the cod liver oil sometimes exerts over certain pathological conditions of the system. That it saved this patient's life, no one, who saw the case, can have any doubt; and it did so after all other appropriate remedies had been tried in vain. Aside from this, however, the case presents several interesting features. The constant progress of the secondary symptoms; uninterrupted by remedies almost invariably successful in similar cases; the perfect contamination of the whole system, while under the influence of these remedies; the occurrence of spontaneous gangrene in so young a person; its association (whether as cause and effect, we do not pretend to say) with symptoms of *arteritis*, and its subsidence under remedies which seemed to control the latter, are points worthy of notice. In this connection, it may not be inappropriate to make a few remarks on the success which has attended the use of the cod liver oil in this hospital, without going into details. The surgical departments have not furnished very numerous opportunities for its

use; we have employed it in the various forms of scrofula, which fall under the province of the surgeon, as hip joint disease, strumous affections of the cervical glands, with constitutional cachexia, in the complications of secondary syphilis with scrofula, chronic abscesses resulting from a strumous constitution, etc., and, so far, our experience has been favorable; it has, in some cases, enabled us to discharge patients as "cured," though we cannot, of course, say that the disease was eradicated from the system; in many cases, it has produced great alleviation of the patient's sufferings, and has materially assisted other remedies. In no case has it seemed to aggravate the disease, and in but very few has the patient's aversion to its taste been insurmountable. We have usually combined it with porter as a vehicle. In the medical department, the remedy has been extensively used, and with flattering success. Most of the cases of *phthisis*, not in the very last stages of the disease, have been very much benefited by its use, the lives of the patients not only lengthened, but rendered much more comfortable; the troublesome cough, and the exhausting night sweats being much relieved. In several cases, the patients have been so much benefited, as to desire their discharge, and have gone to work. In two or three cases, a complete cure seems to have been effected; at all events, all rational signs of the disease were overcome, and the patients who came into the house, pale, emaciated, with hectic cough, and night sweats, left it after two or three months' use of the oil, apparently in good health. In one case, especially, which was in the house last spring, there were large abscesses in the lungs, and it was supposed, from the appearance of the patient, that he could not survive two months. He was put upon the oil, and was eventually discharged cured. There is a case now under treatment in the Medical Department, which came in a month ago with the physical and rational signs of phthisis. The latter were well marked, but the former were not. He had had hemoptysis at intervals for a year past, had a distressing cough of several months' standing, night sweats, and was much emaciated; pulse frequent and feeble. He was immediately put upon cod liver oil, and now, not only have all the rational signs disap-

peared, but also the physical, and he will soon leave the hospital cured. Latterly, I am informed by the resident physician, Dr. Cleveland, the remedy has been employed, in his department, in chlorosis, and with good success. In no case, that I am aware of, has it produced or aggravated diarrhoea, or dysentery; on the contrary, it has appeared to have an opposite tendency; in some cases, producing constipation. We have uniformly prescribed the pale oil; first, that prepared by Rushton, Clark & Co., subsequently that sold by Cummings, which appears to be an excellent article.

The experience in the use of cod liver oil, in the Pennsylvania hospital, appears, from an excellent article, furnished by Dr. Levick, the house physician, to the last number of Hay's Journal, to be similar to our own. A few cases, very far advanced in phthisis, and almost on the brink of the grave, did not seem to be at all benefited by the remedy. Most of the others were materially benefited, their lives being evidently prolonged, and their sufferings alleviated; a few were enabled to return to their business, apparently in good health; though the physical signs were still present. The author makes the following very appropriate remark in this connection —"And here I cannot avoid the remark, now, fortunately, almost supererogatory, that a knowledge of physical diagnosis is of the utmost importance in all cases of thoracic disease. Without such knowledge, five of the cases above alluded to would have been pronounced entirely well. This too may lead us to suspect that, in some (of course not nearly all) of the cases reported in the journals as complete recoveries, this test has been neglected." This is no doubt the fact; and these cases *would be* cures to those who treat *symptoms* merely, as the followers of Hahnemann do. The doctor concludes with the remark that his hospital experience does not warrant the assertion of some, that cod liver oil *will cure* pulmonary consumption; and yet, he says—"we can also understand that it may so strengthen the patient, as to enable him to make use of those hygienic means which are so efficacious; *that it may thus perhaps indirectly cure consumption.* Again, in phthisis, as the local affection is but a part of the disease, if the general health continues to improve, we may hope the diathesis will

be, in course of time, thoroughly changed, *and thus perhaps, cod liver oil may cure consumption.*" "But these suppositions," he adds, "are merely such; the assertion of its good but limited effects are positive. The first may happen, the last has happened."

Now we think that the general experience, especially hospital experience, here and elsewhere, *is such* as to warrant the hope and the belief that this remedy will, and does, cure pulmonary consumption, and in the manner above pointed out by Dr. Levick, namely, by placing the system in such a condition as that natural means may restore it to health; and among these natural means, the most prominent are change of climate, change of occupation, travelling; and this is what no other remedy, at present known, will do; and it is the way in which most, not all, of our medicaments effect their boasted cures, by enabling nature, that is, the inherent powers of life, to overcome morbific action, by removing obstacles which lie in her way. Thus, in a fever, an emetic, by unloading the stomach, or a cathartic, by relieving the bowels, will often set in operation agencies which end in the cure of the disease; and yet we do not say that the emetic or the cathartic cured the patient, though he might have died without them.

CASE 2d. *Arm torn off near shoulder joint.* James Murray, aged 37, native of Ireland, and acting in the capacity of watch on the New-York and Erie Railroad, was admitted July 31st, under Dr. Rodgers. Fifteen hours previous to admission, was lying asleep near the railroad track, with his left arm across the latter, when the train came along, and the wheels passing over the limb close to the trunk, severed it completely. There was but slight hemorrhage at the time, and there has not been sufficient since, to require any artificial means of arresting it. When admitted, there was some prostration, and stimulants were required. Upon examination of the wound, it was found that the wheels had left a very ragged stump, with spiculæ of bone projecting here and there, one especially threatening to pierce the integument just in front of the joint; the bone had been torn off at the neck, and the spiculæ apparently consisted of fragments of the latter and of the head perhaps; there was

so much laceration of the muscles and integument about the shoulder joint, as to preclude the possibility of a successful operation at that point, so that it was determined to do nothing, but to apply soothing remedies, and look out for hemorrhage. No large vessels could be discovered. There was considerable inflammation and swelling of the parts.

Aug. 1st. Reaction well established, and no disposition to hemorrhage. Aug. 4th. Doing well. Sloughing of the contused parts is commencing. Ordered cataplasm, good diet, stimulants, and tonics. Aug. 14th. Ordered to be dressed with the ungt. bals. peru. Sloughs separating. Sept. 12th. Wound contracting, and cicatrizing. An abcess is forming over the pectoralis major muscle. Sept. 29th. Adhesive straps and roller. Oct. 8th. Extracted a large splinter of bone to-day. Wound healing very slowly. Nov. 9th. The wound has now been entirely healed for some days, and a tolerable stump is the result. Discharged cured.

Coup de Soleil or Sun-Stroke.

In "a summary of the transactions of the Coll. of Phys. of Phila.," published in the last number of the Amer. Jour. of Med. Sciences, are some remarks by Dr. Pepper, one of the physicians of the Pennsylvania Hospital, on the above disease. "He considered it a remarkable circumstance that this affection has received so little attention from medical writers." "In consulting the standard authorities, we find but little said in reference to it, and that little generally vague and unsatisfactory." This fact is, in our opinion, easily accounted for. The disease seldom occurs except in crowded communities, as in large cities; and in these, only among a particular class, the common laborers, who earn their daily bread by their daily work, and are consequently compelled, usually, to labor during the intensest heat of the day, when the thermometer, in the shade, ranges from 96° to 100° and over, with not only the direct rays of the sun playing full upon them, but also the reflected rays from the pavements and buildings. Added to this, as the efficient and exciting cause, we have fatigue, intemperance, and often insufficient or improper food as predisposing agencies; these causes do not usually exist in the country, and

in small communities, where, if labor is performed in the heat of the day, and under exposure to the sun, it is with a supply of fresh, wholesome air, with none of the other predisposing causes; the powers of the constitution will, under such circumstances, generally resist its baleful influence. The members of this class, when any accident befalls them, are almost always conveyed immediately to the hospital; and therefore it is rather rare for a private physician to be called to treat a single case of coup de soleil, and of course nothing can be furnished by him on the subject in the way of practical experience. When brought to the hospital, it is generally at an hour when the attending physician is absent, and the case usually dies before his next visit, or is so far recovered as not to call for his particular notice, so that he knows but little personally of the phenomena of the disease. It is thus only seen by the resident physician, who, in the discharge of his multitudinous duties, takes no particular note of the symptoms or history of the case, but sees the patient die in a few hours, perhaps in a few minutes, after his admission, and thinks no more of it.

Private physicians are sometimes called suddenly, in the heat of the summer, to a man who has "fallen down in a fit, while at work," and regarding the case as one of apoplexy, he pulls out his lancet, bleeds him, and sends him to the hospital. This is almost universally the practice. Dr. Pepper says, of twenty hospital patients, *all* had been bled previous to admission. This fact is, of itself, a strong indication that some knowledge of the pathology of the disease is much needed in the medical community; for, it is well known to those who have had much experience in this disease, that venesection, if it succeeds, is almost certain death.

In this city, the disease is quite common in the months of July and August, commencing sometimes as early as the middle of June and ending as late as the first week in September. In the summer of 1847, if I remember rightly, there were thirty-seven cases in four days. Most of them died so promptly, that there was not time to convey them to the hospital, the coroner being usually the only physician who saw them. Not only were men affected, but animals, omnibus horses especially, it being quite common to see them fall, and die in the street.

During the last five years, according to our records, *forty-two* cases were admitted into the hospital. Of these, *twenty-four* died, and *eighteen* survived. Fourteen occurred in the month of August, twelve in July, twelve in June, and four in September.

The prognosis in this disease, as in cholera, depends almost entirely upon the stage in which the disease is seen. If in the stage of collapse, the case is almost hopeless. So that one physician might have ten cases, and all might recover; another might have the same number, and the treatment be equally judicious, yet nine out of the ten might die.

Nearly half of the cases that have been brought to this hospital, as far as my own experience extends, have been in the stage of collapse, or bordering upon it. They were usually brought in late in the afternoon, and, of course, some hours after the inception of the attack. They have then been comatose, with cold surface, except that of the head, which is often very hot, feeble, frequent, and fluttering pulse, scarcely perceptible at the wrist, dilated and inactive pupils, respiration labored, sometimes stertorous. Sometimes they have lain perfectly motionless and paralyzed, sometimes restless, sometimes in convulsions. Often, when in this state, under the application of a powerful stimulus to the surface, as burning alcohol to the legs, a patient has sprung up in bed, stared at those around him for a moment, asked for a drink, taken it, and then fallen back again into his former condition. In a less advanced or less severe stage of the disease, the patient has presented pretty much the same symptoms, but in a less marked degree. The pulse is frequent but not so feeble and irregular, the pupils act feebly, the surface is cool, the head perhaps burning hot; patient is perhaps in a state of partial coma, from which he can be aroused, however, by addressing him by name, in a loud tone; the respiration is quick and labored, but not stertorous; sometimes he has convulsions, quasi epileptic; sometimes he is extremely restless, requiring to be held in bed. In a still earlier or less severe stage, the patient is perhaps able to walk with assistance, complains of intense pain in the head, which is usually hot. The extremities are cool; pulse not much altered, not hard or bounding; no infection of eyes; pupils rather dilated, if altered at all.

Perhaps one or two cases by way of illustration, and briefly stated, would not be amiss here.

C. 1st. A man, name unknown, about forty years of age, was brought to the hospital about noon, July 27th, 1848, and admitted under Dr. H. D. Bulkley. He had fallen in the street a short time previous to admission. Was in a state of complete coma, with labored and irregular respiration, quick and fluttering pulse, head hot, pupils immovably dilated.

Treatment.—Sinapisms to feet, legs, and stomach. Ice to head, and stimulants. He survived but a few hours.

Autopsy, eighteen hours after death.—Brain normal. *Lungs* slightly congested—crepitant. Other internal organs healthy.

C. 2d. Michael Collyer, native of Ireland, laborer, was admitted under Dr. Griscom, Aug. 11th, 1848, in a state of insensibility, having fallen down in the street, respiration stertorous, pupils dilated, pulse quick, feeble, and irregular.

Treatment.—Turpentine enema. Sinapisms to chest and limbs—stimulants freely. Patient survived but a short time.

Autopsy, eighteen hours after death.—Brain slightly congested; lungs emphysematous at some points; other organs healthy.

In these cases, as has been seen, there was no marked congestion of the internal organs. In nearly all the cases that occurred in 1850, there was well-marked congestion of these organs; sometimes of the lungs, sometimes of the brain. Thus, out of *eight* cases recorded in our books, there was congestion of the lungs in *two*, and of the brain in four. In one of the remaining two, there was apoplexy, and this man was bled in the hospital, being the only case out of the forty-two in which the lancet was considered admissible; the case proved fatal.

In the remaining case, there were well-marked epileptic convulsions; this case terminated favorably. The congestion of the brain in two of the four cases was inferred from the symptoms as the cases recovered. In the others, it was revealed by a post-mortem inspection. In no case was *inflam-*

mation of the brain or its membranes observed; and in all the cases the same course of treatment was pursued, with the above-mentioned exception. Cups were applied to the temples in the cases suffering from head symptoms, such as heat, dilated pupils, stertorous breathing, pain, but external and internal stimulation of the most active kind was indicated in all, except perhaps in those admitted in the first degree or stage of the disease. Sometimes the patient was placed in the warm bath, and, at the same time, the cold douche was applied to the head; this usually seemed to have some effect, though but temporary. In the cases which showed congestion of the brain, at the autopsy, the symptoms were still such as to require prompt stimulation, the only difference in the treatment being the local abstruction of blood from the temples, and the application of ice to the head. I knew of one case in private practice in the year '47, which occurred in a high liver, of apoplectic build, and showed marked symptoms of apoplexy. The attack yielded with some difficulty to large bleedings.

Insolation is almost uniformly nervous exhaustion, and is to be treated as such. We are not to bleed because the patient is a robust man, and has fallen in a fit at his work, which seems to be the only circumstance taken into consideration usually by the physician who is hurriedly summoned to such a case. The pulse is always a sure guide.

CASE 3d. *Paralysis and Atrophy of the Deltoid Muscle following injury of the Shoulder.*—Patrick O'Neill, æt. 49, a stout muscular boatman, was admitted January 10, 1850, under Dr. Buck, complaining of a difficulty about the left shoulder, of which he gives the following history:—About eleven weeks ago, sustained a dislocation of the shoulder joint from a fall; applied at the New-York Dispensary, where the dislocation was reduced; was directed to wear the arm in a sling, which he did for a few days. Since the accident has been unable to use the affected limb. Can swing the arm backward and forward, but is totally unable to raise it from his side, there being evidently no action of the deltoid muscle; has pretty good use of the fore-arm and hand.

Upon examination of the shoulder, two striking deviations

from its natural appearance are at once observed, an entire absence of the natural prominence in the situation of the deltoid, and a very evident depression beneath the acromion process, the skin appearing to be stretched over this by the weight of the arm. These symptoms excited suspicion of fracture of the neck of the scapula, but upon close examination this was found not to have taken place; the depression beneath the acromion could be, in a measure, obliterated by thrusting the arm upwards, but it was immediately reproduced by allowing the arm to drop, the limb acting exactly in the manner it would do in the dead subject, if all the attachments about the joint were removed except the capsular ligament. The arm can be carried in every direction by another, and the hand placed upon the patient's head without producing any pain at the shoulder joint; when raised to the horizontal position patient is unable to maintain it there, but it falls heavily to the side as support is withdrawn. There is obtuse sensation of the parts about the region of the deltoid, and an almost complete atrophy of this muscle, which is very striking when viewed in connection with the corresponding muscle of the other side, which is remarkably well developed. Patient has also a large hydrocele. We have been applying blisters and electricity to the shoulder, but at this date, Feb. 3d, there is little or no improvement.

Within a few days after this patient's admission, a stout laborer presented himself at the hospital, with the request that I would examine his shoulder, to see if it were "out of place." Upon doing so, I found an exactly similar state of parts to that above described. The man had received an injury of the shoulder several weeks before; did not apply to a physician; the pain subsided in a day or two, and he went on with his work; but in a few days the shoulder became "weak," and this increased to such an extent as to deprive him of the use of the arm to a considerable extent. He thinks, however, that for the past week or ten days there has been a gradual improvement. Directed him to rub the part well with a stimulating liniment, to shower it with cold water once a day, and to make as much use of the arm as possible.

ART. V. *Report of cases of Tetanus cured by the division of the injured nerve.* By MOSES SWEAT, M. D., of North Parsonsfield, Maine.

CASE 1st. Peter Gerrish, a stout athletic mulatto man, aged 24 years, wounded the ball of his right thumb with the point of a scythe, on the 1st day of August, 1825. The wound healed kindly by the first intention; but on the ninth day unequivocal tetanic symptoms developed themselves, in trismus, pain in the jaws, opisthotonos, rigidity of the upper extremities, &c. The paroxysms so increased in violence and in rapidity of recurrence, that in twenty-four hours he became insensible to every thing around him; and it constantly required from four to six men to keep him on a mattress on the floor, so violent were the spasms. It was evident to all who saw him at this time, that he could not survive but a few hours longer. I proposed to the family in which he resided, to cut down and divide the injured nerve in the wrist, to which they gave their consent. An incision of three inches was made accordingly, over the course of the median nerve, which, by a careful dissection, was soon found and divided. The spasms ceased *instantly*, not a muscle was seen to move (except those of respiration)—he was perfectly still about an hour; he then aroused, and looking wildly around, inquired how he came there,—what had happened, &c. He had no recurrence of tetanic symptoms afterwards.

CASE 2d. John Johnson (son of David Johnson of this town), aged 20 years, shot off one joint of his right thumb with a musket, on the 16th of January, 1826. It was dressed properly, and it healed kindly until the seventh day after the accident, when he was suddenly seized with tetanic symptoms,—his jaws soon became fixed, attended with severe pain —and the phenomena, in short, were the same as those in the preceding case. His parents and friends were unwilling to consent to the operation for the division of the nerve, until they were all satisfied that he was fast failing, when they consented. The operation was carefully performed, and the pa-

tient was instantaneously cured of all tetanic or spasmodic symptoms. The wounds healed in a short time, and he had no recurrence afterwards.

CASE 3d. Miss Almeda Kimball, of Hollis, aged about 20 years, of slender habit, had a branch of the ulnar nerve punctured at the right wrist, with the point of a needle, about the 1st of January, 1848. Severe pain followed immediately, which continued to extend until it affected the whole course of the nerve: inflammation soon followed about the wrist, which extended over the whole fore-arm, attended with great swelling and total inability to move the limb. I was called to visit her on the 25th of that month, found her under the care of Dr. Cheney, whose treatment was judicious. She was *then* affected with pain in the side of the neck and jaws, with some rigidity of the muscles about these parts, as well as severe pain and inflammation in the injured limb. I suggested the propriety of dividing the nerve, if tetanic symptoms should increase. On the 7th February, I visited her again; she had unequivocal symptoms of tetanus. We divided the ulnar nerve, and took out an inch, just above the groove in the inner condyle of the humerus. All symptoms of tetanus ceased and she soon recovered. In all cases where I have found it necessary to operate, I have removed a *small section* of the *injured nerve.*

I might mention several other cases, in which I have stopped spasmodic affections by dividing nerves, in wounds which I have been called to operate on, for the security of arteries, in cases of aneurisms, hemorrhages, &c., improperly managed. One case I will relate, viz.:

CASE. On the 3d December, 1810, (while I was in practice with Dr. B.) I was called to visit J—— B—— of Limerick, who, in a fit of delirium tremens, on the 25th Nov. struck his fist through a square of glass and wounded the radial and ulnar arteries at the wrist. Dr. A. of N. was called, and dressed the wounds; stopped the bleeding (which was said to be rather profuse) by means of compresses and bandage, which prevented external hemorrhage while the compresses were

closely applied, but, whenever they were loosened, the wound over the *ulnar* artery, it being rather large, would bleed. The wound in the integuments over the radial artery was but a mere puncture, and it had, in fact, healed by the first intention, while the wounded artery continued to bleed, and formed a large false consecutive aneurism. He had, that day, began to have some spasmodic contractions of the muscles of the arm. Dr. A. was present. It was agreed upon to operate and secure the arteries. The wound of the integuments over the ulnar artery, was extended to about two inches in length; the artery bound and secured by ligatures above and below the bleeding orifice made by the glass. We then made an incision through the integuments over the aneurismal tumor (which was large) to the extent of four inches; removed the *coagula*, found the artery, and secured it. In this operation, we found several spicula of glass, and on examination, found one small piece which had wounded the median nerve; to this injury of the nerve we ascribed the spasmodic symptoms which had just begun to develop themselves. We *divided it*, and all the spasmodic symptoms ceased at once, and he had no more afterwards.

ART. VI. *Report of Cases occurring in the New-York Hospital.* By W. H. CHURCH, M. D., Resident Surgeon.

CASE 1st. *Femoral Aneurism Treated by Compression.*— Daniel Feeks, aged 30, born in New-York, was admitted into the New-York Hospital on the 18th of January, 1851, John Watson, M. D., attending surgeon, with an aneurism of the right femoral artery.

Patient had been working in an iron-rolling mill until two years since, when he removed to a farm, and has continued his employment as a farmer since that time. He has the appearance of a strong healthy man, and has never suffered constitutional inconvenience from the disease for which he requires treatment. Upon inquiring as to any injury of the part, he says that five years ago, while working in the rolling mill, a pair of tongs were thrown by the steam hammer, which

struck him, but upon what part he cannot say. Vague as this account is, we must give it all the weight it can have as an exciting cause, as it is the only injury that he recollects having received prior to the appearance of the tumor.

About three years since, while sitting with the hand lying upon the inner part of his right thigh, he felt a pulsation, which of course excited his surprise, as he supposed the pulse could only be found at the wrist, consequently he immediately examined the part, and found a hard tumor the size of a hickory nut, and, as above-mentioned, with a pulse. He paid no attention to it at the time, and neglected applying to a physician, although constantly urged to do so by his friends. The tumor continued slowly and steadily to increase in size, but without causing him the slightest inconvenience, until two weeks before admission, when it had attained the size of a goose-egg. Fourteen days before presenting himself, he had been fishing through the ice all day, slipping about and straining the leg very much. That night he experienced severe pain in the limb, and the next day was obliged to give up his work in the middle of the day and go to bed; since that time the tumor has increased at least one-third its original size, and the pain has continued without intermission. He then became alarmed, and thought it time to seek surgical assistance. On applying to his physician, he advised him to come to the New-York Hospital.

Present appearance. The first thing that attracts the attention on looking at the part, is the pulsation in the tumor. The tumor is tense, but elastic to the touch, in fact presenting all the characteristic signs of femoral aneurism, but unusually well marked. It is situated on the anterior and inner part of the ham, its upper edge being three inches below Poupart's ligament, probably just below the giving off of the profunda branch of the femoral artery; it is slightly oblong, extending down the course of the artery six inches, that being its greatest length.

Jan. 19th. The leg being bandaged from the toes up to the knee, pressure was commenced at a quarter past one, P. M., with Dr. Hosack's instrument, by which the counter-pressure is made over the trochanter and the outer condyle of the os

femoris. When the instrument was first adjusted, and pressure made over Poupart's ligament sufficient to stop the pulsation in the tumor, patient most confidently said he could bear it for four weeks. At two, P. M., pulsation was felt in the tumor, and he complained of some pain. Another pad was applied two inches below, and the pressure of the other slackened, though retained in the same position. Four o'clock, full pulsation, and patient suffering severe pain; pad changed, and tinct. opii gtt. xl administered. During the afternoon patient suffered very severe pain, the pressure requiring to be changed very frequently. At six, P. M., tinct. opii gtt. xxx was ordered. At eight o'clock he complained of excessive pain passing down the thigh to the knee joint, tincture of aconite was painted over it and about the pads, which he said gave him relief. It was found impossible to control the circulation sufficiently by the lower pad of this instrument, and therefore Signoroni's artery compressor was substituted, one pad being placed upon the plate of the former instrument and the other over the artery. Sol. sulph. morphiac (Magendie's) gtt. xx.

At 9 o'clock the pain was so severe that sulphuric ether was administered, which relieved the pain for an hour; and he appeared to be more under the influence of the opiates after the anæsthetic influence had passed away. The senior assistant remained with him during the night, and at one A. M., of the 20th felt pulsation in the tumor for the last time, when he adjusted the pad, so that its pressure was borne very well until 5 A. M.

Jan. 20th, 10 A. M. Blood could be *heard* passing through the tumor, but no pulsation heard. Signorini's compressor was again adjusted, and remained undisturbed until half-past four in the afternoon, when the pressure was slightly moderated.

Jan. 21st. Compression has been continued during the last night, though less firmly than at first, and entirely at the lower point. At midnight sol. sulph. morph. gtt. xx. were again administered, and about three o'clock this morning patient fell asleep, and slept more than an hour. There is no pulsation to be felt either in the tumor or in the posterior tibial artery. The temperature of the limb is a very little lower than of that of the opposite side. Patient feels very much

less pain, and pressure is borne for several hours with but little complaint.

Jan. 22*d.* Patient slept during the greater portion of the last night, and to-day complains of but little pain. The size of the tumor is somewhat diminished, and feels much softer than yesterday. The limb is not at all swollen, and its temperature is about the same as that of the other side.

Jan. 25*th.* Since the last date very moderate pressure has been continued, change of position of the pad not being required oftener than once in twelve hours, and to-day the compressor is entirely removed. A thick compress of lint is applied over the artery, and firmly secured in its position by a single spica bandage. No pulsation can be detected in any part of the limb, though the surface is now of a higher temperature than that of the left side. The tumor is gradually diminishing in size.

Jan. 28*th.* All compressure is to-day discontinued, the bandage removed from the leg, and the patient allowed to sit up, the limb being elevated, and resting upon a pillow. He speaks of slight numbness about the knee, but has no pain whatever in the limb.

Feb. 1*st.* No pulsation can yet be felt in the popliteal, or posterior tibial arteries, though the limb is fully as warm as the other. Patient sits in a chair during the whole day, and sleeps perfectly well at night, without the aid of an anodyne. The tumor continues to diminish, and is now not more than half as large as before treatment was commenced. It is also becoming more firm.

Feb. 6. Patient being very anxious to return home, permission to do so is given. Pulsation in the posterior tibial artery has not returned.

Remarks. The time employed in the cure of this case was remarkably short, as the last pulsation was felt twelve hours after the application of the compressor, and the size of the tumor required the formation of a large coagulum. The position of the aneurism, which consequently abridged the space upon which pressure could be made, threw another embarrassment in the way of the cure.

I am satisfied by what I have seen of this mode of treat-

ment, and more particularly by this case, that the sufferings of the patient can be very much diminished by the care of those in charge, and it must be evident by this case that ether or chloroform must be a powerful adjuvant in the use of compression, even if it were necessary to keep the patient under its influence through the whole treatment, which would not be an unjustifiable length of time.

CASE 2d. *Cauliflower Excrescence of the Uterus.*—A. M. M., æt. 46, born in the State of New-York, married, was admitted into the New-York Hospital on the 17th of Dec., 1850. John Watson, M. D., attending surgeon.

The first notice the patient had of the above-named disease was one year since, when she was attacked with severe pain in the lumbar region, being aggravated during and after a passage from the bowels. She had suffered for several years previous to this time with hemorrhoids, consequently these troubles were attributed to them, and a course of treatment adopted with reference to the hemorrhoids. Three months after the commencement of the pains she noticed a small tumor in the vagina, which has continued slowly to increase, until it has attained the size of a hen's egg. All treatment prior to her entrance into the hospital has been of a palliative character, the tumor not having been interfered with, except by the use of anodyne injections, per vaginum, to relieve the pain.

The patient has always lived upon a farm, and occupied in the regular habits of that class of people; has had several children, the youngest being nine years of age. She says that since the discovery of the tumor there has been a continual watery discharge from the vagina, which is now so profuse as to saturate ten or twelve napkins during the twenty-four hours. Hemorrhage has occurred several times, but in such slight quantity as to cause her no uneasiness. She is emaciated, and feels her strength beginning to fail, but during the whole time the menses have continued to flow pretty regular. To relieve the pain sufficiently to sleep, she has been obliged to take from one-eighth to three-eighths of a grain of morphine at bed-time for the last two months. The character of the

pain is that of dragging in the lower region of the back. Upon examination per vaginum, the os and cervix uteri are felt largely distended, their walls being thinned and indurated; the cavity of the uterus is occupied by an irregular mass of a firm consistence, which can be traced up to its middle, and it is there found attached to the sides of that organ. Upon examining a piece of the tumor, which can easily be detached with the fingers, its surface is more florid than flesh color, with an irregular surface of a granular appearance, and from these points a white cheesy matter can be pressed by the fingers.

Dec. 18*th.* The speculum vaginæ being introduced, portions of the tumor were removed with the volsella and the raw surface freely rubbed with the argentum nitratis; pieces were thus twisted off, and the surface of the tumor coated over with nit. of silver until the inner surface of the os uteri was brought into view, when the operation was discontinued. Hemorrhage during the operation moderate in quantity.

Dec. 19*th.* Patient quite comfortable; there being slight hemorrhage, was ordered to use an injection of sulp. of alum ʒij, aqua ℥viij.

Dec. 23*d.* No hemorrhage has recurred. There is now a discharge of thin purulent matter of an offensive character from the vagina.

Dec. 26*th.* Another examination was made, in which the operation was very much accelerated and a better view of the parts obtained by separating the walls of the vagina with three spatulas in the hands of assistants. A large quantity of detritus matter was found about the os uteri, which was removed, and the same course pursued as at the previous examination, the whole tumor being nearly removed by the instrument when the remainder was thoroughly coated over with the solid nit. of silver (which was also used at the previous operation). The operation was a tedious one, requiring nearly an hour; the exhaustion and suffering of the patient was much less than could have been expected. The hemorrhage amounted to ℥xij.

Dec. 28*th.* Has been comfortable, but complains of weakness, pulse small, and appetite very delicate. Ordered the

bitter infusion, a wine glass full three times daily, nourishing diet and porter.

Jan. 2d. Patient is very anxious to leave the hospital and go to her friends, consequently she was to-day discharged, relieved, which certainly was the case, as the pain was almost entirely gone; could sleep better, appetite and strength had somewhat returned, and instead of saturating ten or twelve napkins daily, three or four were found sufficient.

Remarks.—Dr. C. M. Clark reports one case in which the disease had not returned in twelve years; that case was treated principally by astringents, and no operation was performed. The astringents had so contracted the vagina that it was almost impossible to introduce the finger. The case which we have just reported presents a good opportunity to test the possibility of a radical cure, as it is comparatively recent, having come under treatment in less than a year after the appearance of the first symptoms; the subject is not much past the middle age, with a naturally good constitution, upon which the disease has not yet made much impression.

CASE 3d.—*Laceration of Hand followed by Tetanus.*—Mathew McGuire, aged 36, born in Ireland, laborer. Admitted into the New-York Hospital, Jan, 15th, 1851. John Watson, M. D., attending surgeon.

Fifteen days since, while engaged in blasting rocks, a charge was prematurely exploded, by which his left hand was very severely lacerated, the laceration involving the palm of the hand, the thumb, and the little finger. The wounds have been healing favorably. Three days since he began to feel stiffness about the neck, and some difficulty in opening the mouth, which troubles he attributes to a cold. These symptoms became rapidly more severe and paroxysmal, accompanied with pain about the abdomen and back, particularly on the left side. All pain in the hand ceased. These symptoms have continued to the present time. The surface of the body is now covered with a profuse perspiration, the muscles of the face are contracted, giving the peculiar characteristic expression of tetanus. Has not the power of opening his mouth more than half an inch, and his pulse is full, and 130 in the minute. Has not yet had any very severe tetanic par-

oxysms. *Treatment.*—Hand enveloped in a flaxseed poultice. solu. s. morphia (Majendie's), gtt. xx. every three hours.

Jan. 15th.—Condition about the same. Morphia discontinued, and brandy freely given. Injections of tinct. assafœtida ʒij, muc. gum arabic, ʒi. thrown into the rectum every four hours.

Jan. 16th.—Last night had a severe paroxysm, the mouth was firmly closed, the surface covered with a profuse perspiration, and emprosthotonos strongly marked. This morning, during another paroxysm ether was administered, and under its influence the muscles became completely relaxed. The pulse was 146 before its administration, but was reduced to 130. Brandy continued as freely as patient will drink it.

Jan. 17th.—Ether was administered on the approach of a spasm, which happened three times during the last twenty-four hours. Patient was brought fully under its influence each time before the spasm had progressed much. At 5 o'clock this morning I was called, and found the patient in a severe spasm, with opisthotonos, rigidity at the jaws, and a copious discharge of saliva from the mouth. An attempt was immediately made to administer ether, which was continued for ten minutes, without apparently producing the slightest effect; it was then discontinued, and in one hour the patient died.

ART. VII.—*Reasons for concluding that an Excess of Carbonic Acid is the atmospheric cause of Cholera. A paper read before the Medico-Chimurgical Society of Cincinnati, Sept. 5th,* 1850. By D. L. STARR, M.D., of Cincinnati.

MR. PRESIDENT, when I announced the subject of my paper this evening, at our last monthly meeting, I was admonished that it had become hackneyed and stale. Cholera has, indeed, become common, alas, too common, as the pealing death-knell, the slowly-moving hearse, and the craped door-knob, have borne dreadful testimony, during the past and present year. But though the angel of this death has thrice and again spread his dark wing in our atmosphere, and breathed in the face of the inhabitants of our city—shall we, because of our frequent opportunities, cease to investigate the laws to which it is subject? Is the atmospheric cause of this pestilence, that moves in

darkness, and this destruction that wastes at noonday, too occult to be searched out by the human intellect, whose power daily seizes the armor of the storm-cloud, and loads the lightnings with its messages? Though Cholera speaks not with an audible voice, yet numerous are its index fingers, pointing to decomposing animal and vegetable material, to filthy streets, to stagnant pools, to ill-ventilated and overcrowded apartments, and numerous other laboratories where it generates its death-vapor, and like wisdom personified by Israel's royal monarch, it cries, "Unto you, O men, I call, and my voice is to the sons of men." If we do not, this evening, designate its ultimate essence, we shall, at least, direct your attention to its most powerful coadjutor.

"Carbonic acid abounds in great quantities in nature." It is eliminated by numerous phenomena, a few of which we present to your recollection. An adult, taking moderate exercise, consumes $13\frac{3}{10}$ ounces of carbon daily; these $13\frac{2}{10}$ ounces of carbon escape through the skin and lungs in the form of carbonic acid; for conversion into carbonic acid, $13\frac{2}{10}$ ounces of carbon require 37 ounces of oxygen; thus we have eliminated for every adult person, over 50 ounces of carbonic acid every 24 hours. A horse consumes $97\frac{1}{8}$ ounces of carbon in the same space of time, which requires 13lb. $3\frac{1}{2}$ ounces of oxygen to convert it into carbonic acid, eliminating in 24 hours, over 19 lbs. of carbonic acid gas.

A milch cow consumes $69\frac{2}{10}$ ounces of carbon a-day, which unites with 11 lbs. $10\frac{3}{4}$ ounces of oxygen, forming over 14 lbs. of carbonic acid. It is desirable to bear in mind the quantity of oxygen withdrawn from the atmosphere, in the production of carbonic acid, as well as the volume of gas generated; these facts will be subsequently referred to, in accounting for some of the obvious phenomena of cholera.*

Combustion is another fruitful source of carbonic acid; a still more prolific source is limestone, calcareous spar, marble, and calcareous earths. It is set free from them all by the action of the acids, by heat, and by water, in favoring the contiguity of these substances to others capable of decomposing them. I suppose that the limestone which forms our pavement, when pulverized by the wheels of vehicles, emits large quantities of this gas, under the elevated temperature of the direct rays of the sun: $\frac{44}{100}$ of limestone is carbonic acid; if we calculate 7 cubic feet of acid to the pound, at 32 degrees Fahrenheit, then add one $\frac{1}{490}$ part of its volume for every additional

* Liebig's Agricultural Chemistry.

degree of heat above the volume it would occupy at that point, and multiply this number of cubic feet by 44, we shall have the volume of carbonic acid contained in 100 pounds of limestone; but, if one measure of carbonic acid be diluted with four of air, it is almost instantly fatal to the inhaler; and one volume to 500 of the air, would be double the average quantity contained in the atmosphere in ordinary seasons. Carbonic acid is also freely generated by fermentation, and by decomposing animal and vegetable substances.

Carbonic acid is one half heavier than atmospheric air, its specific gravity being 1.521. Yet owing to the tendency of gases to diffuse equally through each other, it does not separate from the atmosphere, and accumulate in low situations, when there is no generating cause present; but when the currents of air are interrupted, and a generating source is present, it does accumulate, and its destructive effects are frequently experienced by those who incautiously descend deep pits, wells, or beer vats. We ought to admire the goodness of the great Creator, who, by a law, the philosophy of which is not well understood, and which seems opposed to the law of gravitation, prevents this gas from gravitating, like water, to the lowest situations, displacing the atmospheric air, and wrapping the surface of the earth in a winding sheet of death. It is not intended to convey the idea, that from its tendency to diffuse, this gas pervades the atmosphere in equal proportions; like heat, wherever the emanating source is, the quantity will necessarily be greater in proportion to the amount generated. Again, although carbonic acid is found at the altitude of the summits of lofty mountains, yet altitude diminishes the quantity, in proportion as the air is rarefied.

The combining proportions of oxygen and carbon, the two elements comprising this acid, is one equivalent of carbon, 6, and two of oxygen, 16. Carbonic acid is absorbed by water, in volume about equal to that of the latter. It unites chemically with a solution of the hydrate of lime, forming carbonate of lime. It is the great supporter of vegetation; from 39 to 50 per cent. of the dry solid matter of the vegetable kingdom is carbon. This vast sum of carbon is withdrawn from the atmosphere by the foliage of vegetation; but for every equivalent of carbon thus derived from the atmosphere, two of oxygen is set free. This is another of those great and important facts in the economy of nature, that speaks the infinite wisdom of its omnipotent Creator and Designer. As the blood of animals is repaired and revived by the oxygen set free by the absorption of the carbon by the plant, so the carbon eliminated by the expiration of the breath in animals, enriches and vitalizes the sap of the vegetable.

The mean quantity of carbonic acid in the atmosphere is found, upon the most exact and careful experiments, to be about one part in a thousand, by weight, *but the quantity varies according to the season.* Leaving those natural properties of this acid which are foreign to our purpose, we proceed to inquire, lastly, upon this branch of our subject, what are the effects of the inhalation of carbonic acid upon man and the lower animals? If an animal be made to breathe carbonic acid, life is quickly extinct. It not only destroys life, but the muscles lose their irritability so as to be insensible to the stimulus of galvanism. After speaking of its property of destroying combustion, Mr. Turner remarks, that "it is not better qualified to support the respiration of animals, its presence even in a moderate proportion being soon fatal. An animal cannot live in air which contains sufficient carbonic acid for extinguishing a lighted candle, and hence the practical rule of letting down a burning taper into old wells or pits, before any one ventures to descend; when any one attempts to respire pure carbonic acid, a violent spasm of the glottis takes place, which prevents the gas from entering the lungs. If it be so much diluted with air as to admit of its passing the glottis, it then acts as a narcotic poison on the system." Liebig, when speaking of miasms being inhaled into the lungs, says: "No other component part of the organism can be compared to the blood, in respect to the feeble resistance which it offers to exterior influences. The blood is not an organ which is formed, but an organ in the act of formation, indeed it is the sum of all the organs which are being formed. The chemical force and vital principle hold each other in such perfect equilibrium, that any disturbance, however trifling, or from whatever cause it may proceed, effects a change in the blood. This liquid possesses so little permanence, that it cannot be removed from the body without immediately suffering a change, and cannot come in contact with any organ of the body without yielding its attraction. The slightest action of a chemical agent upon the blood, exercises an injurious influence, even the momentary contact with the air in the lungs," alters its color and other qualities, "and by chemical action propagates itself through the mass of the blood." He reckons carbonic acid as one of the most frequent and pernicious miasms, and says it possesses the property of permeating the animal tissues, as water penetrates unsized paper, thus exerting its baneful effects upon every organ of the body.

We, in this connection, desire to anticipate a single appeal to the experience of every practitioner who has *experience* in cholera, whether stimulants, after the disease is fully formed, even Cartwright's

burning powders, are not found to be utterly useless; simply because the excitability of the muscular system is destroyed.

We proceed to inquire whether cholera prevails more extensively and more virulently, in regions and places where carbonic acid is generated in excess. First, then, as to its origin. Dr. Smith informs us, that "there was no peculiarity of the weather at the time," and that its origin was attributed to bad rice and spoiled fish. In its origin, therefore, carbonic acid is clearly inferred. 2d. It prevails more extensively and more virulently, as a general rule, in dense populations.

If we trace its course in India from Calcutta till it overspread the whole of Hindustan, we shall find it coursing from city to city and from town to town; so it was in Europe, and so in America. The country has suffered but little in comparison, and always, as far as my observation has extended, in low and marshy districts, or on limestone soils.

Professor S. H. Dickson, of New-York, has published a paper in the New-York Journal of Medicine, accompanied with a map of the country ravaged by the cholera during the years 1845-6-7 and 8, showing its march, or course from city to city—it, as a general rule, following the large streams, and very few instances is mentioned of its prevailing in the country. At the end of the year 1846, it was ranging in the 42d deg. of north latitude, on the confines of Europe. Here, says the professor, it stopped at the end of the year, and took up, so to speak, its winter quarters. During two months nothing was heard of it; "there was indeed a moment of hope that it had disappeared entirely. But this illusion did not last. At the end of March, 1847, this modern hydra started from its short sleep, and raised more terrible than ever its thousand hungry heads. It reappeared in the lower valleys of Daghestan, and Chirwan, in the midst of the marshes which fringe on this shore of the Caspian Sea. This region, fruitful in intermittent fevers of a grave character, seemed equally propitious to the production of cholera morbus. The fatal coincidence which exists in many places between the epidemic we have described, and the intermittent fever, has been often remarked. The analogy of these is even so striking, that many physicians have gone so far as to consider them fundamentally identical."

In an examination of the facts here recorded, the first question that presents itself is, why cholera prevails more violently in dense population, as cities? The answer is plain; the sources of carbonic acid are more numerous, and the vegetation is less. Consequently more is generated and less is absorbed.

2d. Why prevail more extensively in marshy districts? Because the decomposing vegetable matter yields large quantities of carbonic acid. Because water holds in it a quantity of carbonic acid, in volume equal to its own, and the atmosphere is surcharged with watery vapor.

3d. Why not prevail in the winter? Because at low temperatures decomposition, the chief source of carbonic acid, is arrested.

Two or three other facts, stated in Professor Dickson's paper, claim our attention. He says: "In the province of Caucasus, the disease showed itself more intense in the valleys, and in defiles inaccessible to winds." These situations are precisely such as would have been pointed out by the chemist as being more exposed to the accummulation of carbonic acid. He also states that "it does not cross the ridges of high mountains." The reason of this fact will be obvious, when it is remembered that carbonic acid cannot accumulate in excess, in any situation where there are free currents of air, and that where limestone is absent, no emanating source can exist in such altitudes. One other circumstance we quote from this paper. "There is a small Moravian colony called Sarepta, situated in the bend of the river (Bolga), in the midst of Calmuc hordes, eulogized by all travellers for its remarkable industry, and minute cleanliness, and all other laudable and fortunate features of character. The cholera seemed to respect this sacred spot, passing it by both in 1830 and 1847, without inflicting upon it the least evil."

Dr. Buel, of New-York city, published a paper showing the rise and progress of cholera in that city during the years 1848 and 1849, from which we quote. "This place," (No. 20 Orange-street,) "having been, so to speak, the birthplace and natal soil of the recent epidemic, is perhaps deserving a moment's notice." "The entrance to the rear lot is gained by an opening scarcely two feet in width, or more than six feet in height, pierced through the front house. Passing through this a distance of forty feet, you reach the rear of the lot, on which are two old and ruinous tenements; one a prolongation backwards of the front house, the other standing across it at right-angles. The adjoining house has an extension backwards in the same manner, thus cutting off almost completely all ventilation or admission of fresh air. The small area left unbuilt upon is covered with black pools of filthy water." "The apartment where the first cases occurred is a basement or cellar of one of these rear buildings. The room is about ten or twelve feet square." "At my first visit, on the 16th of May, five human beings, one man and four women, lay upon the floor in different stages of cholera." He states

that during the first part of June the Centre-street Hospital was crowded quite beyond its capacities, and that the mortality was greatly increased in consequence.

Who can fail to discover, in this state of things, the cause of the disease to be carbonic acid? To what other sufficient cause can it be ascribed?

But we continue our extracts: "There were in the city a number of particular localities in which the pestilence raged with extraordinary malignity. These were in the neighborhood of the Five Points, the lower part of Washington-street, in the 1st ward, the streets and avenues in the 16th ward, lying near the North River, and in the northeastern section of the city, in the 9th, 10th, 11th, and 13th wards. This unusual malignity was produced in part by local causes, and in part by the character of the population. In the 6th ward, occupied to a considerable extent by a filthy, degraded, and vicious population, and in which abound places similar in character to that described in the commencement of this paper, it can be no matter of astonishment that the pestilence devoured hecatombs of victims." "The section of the 1st ward where it raged most severely was crowded with newly arrived German emigrants, living in habits of personal and domestic filth." The great mortality in the 16th ward is ascribed to pits and pools of stagnant water, numerous horse-killing and bone-boiling establishments, &c. All of these circumstances will be recognized as so many fountains, from which no other miasma sufficient to produce the effect could be generated, but carbonic acid.

But the space of our paper will not permit us to multiply instances which crowd upon us, in great numbers, all tending to the same conclusions.

Cholera has always been observed to be in some manner connected with humidity. Dr. Smith speaks of its pursuing the course of the large rivers. Professor Lawson remarks that it was either preceded or accompanied with a rainy season. When the army of the Marquis of Hastings was removed to a drier and more elevated region, the disease ceased to prevail. So numerous is the testimony on this point, so well authenticated, and so generally known, that we deem it unnecessary to occupy your time by repeating. But, as Professor Lawson says, "It is well know that cholera prevailed mostly or quite unchecked by a Russian winter, and that when the thermometer stood at 20 deg. below zero, which could admit but of little water in the air, the disease still maintained its epidemic character. Indeed it has often been observed, when no hygrometrical change could be detected, and consequently when moisture could have had no agency

either in originating or extending the disease. But when the fact before stated is recalled, that water holds in solution a volume of carbonic acid equal to its own, and that for any cubic inch of water inhaled in a humid atmosphere, a cubic inch of carbonic acid is also inhaled, the explanation of the agency of humidity in favoring the progress and development of cholera is plain.

The prevalence of cholera at Moscow has been justly ascribed to the well-known habits of the people, in living during the excessive rigors of winter in subterranean apartments where free ventilation is impossible. The lower classes herding together in those unhealthy abodes, and carbonic acid inhaled with every expiration, and having no way of free access, is accumulated to a very deleterious extent.

On the 25th day of November, 1848, the packet ship New-York was in the latitude of Nova Scotia, bound from Havre to New-York, and laden with French and German emigrants; at that period the disease appeared among the passengers; but neither at the port of embarkation, nor at any point from which the emigrants proceeded, was the cholera prevailing. How can this fact be accounted for? Easily, by supposing that when the disease appeared, the ocean bed was formed of carbonate of lime, yielding its carbonic acid under the chemical influences exerted by the decomposing agents of the ocean, or by what is more probable, by the carbonic acid exhaled in the overcrowded and confined hold of the ship.

An officer on board of one of our river steamboats, lately informed the writer, that not a case of cholera had occurred on board that boat, either the last or present summer, although the boat is a regular passenger packet; and the reason assigned was, thorough cleansing and whitewashing the internal hull of the boat.

It has been frequently claimed, that the cholera prevailed more virulently on limestone soils; so far as my own limited observation extends, this opinion is correct. During the summer of 1832, the disease prevailed dreadfully at Poughkeepsie, on the banks of the Hudson river. The village contained about 10,000 inhabitants, and is situated on an eminence of a hundred feet or more above the water. The streets are wide and the houses are not very compact; the streets were kept remarkably clean, being scraped and swept twice a week, and are of such a grade that the water has rapid egress to the river. No other cause can be attributed for the virulence of the epidemic but the limestone soil.

Barnegat, also situate on the banks of the Hudson, upon a perfect bed of limestone, suffered worse, in proportion to its number of inhabitants, than any country village that came within my notice; in

1832 and 1834, villages but a few miles distant, but upon a different soil, were scarcely visited at all by the epidemic.

But few places on this side of the Atlantic have suffered more dreadfully than our own city, during the summers of the past and present years. If we suppose our population in the summer of 1849 was reduced by transient removals to 100,000, or less; the remaining portion were nearly or quite decimated. Our soil and our pavements are limestone; and the dust of our streets is *pulvis calcis*, 44-100ths of which is pure carbonic acid, a large amount of which must be set free under the play of chemical affinities and an elevated temperature.

Let us direct our attention, for a moment, to our own experience and observation as to the prevalence of cholera in over-crowded, ill-ventilated, and filthy apartments. Our experience corresponds with all other observation on this subject. Who were the great mass of sufferers during the two past visitations of the epidemic, and what quarters of the city were mostly infected? I need but ask the question, and all are simultaneously ready to answer. What could have occasioned the excess of mortality among emigrants and foreigners? Shall we be satisfied to say, over-crowded apartments, want of cleanliness or ventilation? Will this answer satisfy the philosophic mind? The question immediately arises, In what manner does these conditions affect the living organism? First, then, the atmosphere of over-crowded apartments becomes surcharged with the carbonic acid exhaled from the lungs and pores of the skin. A very noted instance of the effects of this over-crowding is related, where 149 captured troops were crowded into a dungeon 18 feet square, in Calcutta; in the morning but 23 of the number were alive, the rest had expired under the influence of the carbonic acid exhaled. Another instance lately occurred in the Irish Channel, where the passengers in a storm were confined in a cabin, in the hull of the vessel. When the hatch was removed in the morning, it was found that a great number had perished from the surcharged state of the atmosphere, with the carbonic acid exhaled.

2d. When the air is confined, as in ill-ventilated apartments, although the natural tendency of the carbonic acid eliminated is to diffuse, this diffusion is prevented by the causes that prevent a free circulation of the air. For this reason, this gas is accumulated in coal mines, and is known to miners by the name of choke-damp. Mr. Peale, formerly of Philadelphia, now deceased, recommended the establishment of currents of air in those cases, by combustion, which, since his death, has been successfully tried in a number of instances.

3d. All animal and vegetable decompositions are sources of carbonic acid, hence the necessity of clean apartments. Lastly, personal filth prevents the escape of this gas through the pores of the skin, and being retained in the circulation, it permeates the animal tissues, and its effect is felt by every part of the organism.

The previous remark, that cholera did not cross the ridges of high mountains, corresponds with the statement of our president, in a paper read before this Society at its last meeting. This statement is undoubtedly true, and yet the objector will point to the city of Mexico, where the disease prevailed extensively at an altitude of nearly 8000 feet above tide-water. But it must be remembered that this city is situated in the centre of a great amphitheatre, upon a part of the former bed of Lake Tezcuco, and subject to inundations, at one of which more than 40,000 of the inhabitants perished—that the ground to the southwest of the city is a marsh—that the drinking water from Chapultepec contains a large quantity of the carbonate of lime—that the atmosphere of the city is seldom disturbed by a current of air—that the city is exceedingly filthy, the excrements of the poor, who have no privies, being deposited in the streets. Dr. Newton, from whom we derived these facts, states, that the filth is more injurious from the want of currents of air to carry it off; and that the exhalations become concentrated. The situation of the city, therefore, the filth of the streets, the humidity of the atmosphere, and the character of the inhabitants, who are excessively dirty, and the number of the population, all conspire to render it a vast laboratory for generating, and a magazine for containing, carbonic acid in fearful excess.

Do the phenomena of cholera exhibit such appearances, as to lead us to suppose that they might have been caused by carbonic acid?

The liver is one of the principal agents in decarbonizing the blood. In cholera this organ is *always* dormant, and, in consequence, the blood retains a large quantity of carbon, which should have been eliminated. One of the principal indications in treatment, is to restore the action of this organ; and it has always been asserted by all recognized authority, from Good to Cartwright, that if this organ could be made to perform its functions, the patient would recover. The importance of this organ in decarbonizing the blood will be understood when a few facts are considered. A man secretes from 17 to 24 ounces of bile in 24 hours; after taking the water from this quantity, 69 per cent of the remainder is pure carbon. If this carbon exist in the blood, in the form of carbonic acid, which is almost certain, then for every atom of carbon secreted in the bile, two of oxygen are set free; and thus the liver becomes *almost* as important an agent in sup-

plying the blood with oxygen as the lungs. Connected with this is another motive of vast importance; the oxygen thus liberated in the liver would combine with other carbon, and the loss of caloric from this want of combination is sufficient to raise 50 lbs. of water from the freezing to the boiling point in 24 hours.

Again, the loss of tone in the muscular system, permitting the capillaries to pour out the serum of the blood into the intestines, and on the epidermis, is precisely what we should have calculated, *a priori*, from the known effect of this gas upon the organism. Here, then, we have all of the most important pathological conditions of the system, in cholera, at once accounted for.

Objection—If an excess of carbonic acid be the ultimate cause of cholera, why has not the disease been of more frequent occurrence? Evidently, because the gas has not been generated to so great an extent as to produce it. And is it not more philosophical to conclude, that a substance always existing, and universally diffused, should be generated from its inexhaustible sources in excess, than that a new cause should have sprung into existence capable of extending itself over every part of the earth. If the objector inquire why an excess of carbonic acid is generated some seasons and not others, we can only say, the fact is proved by De Saussure's experiments; and is it more astonishing that the numerous causes in operation should, at some seasons, generate more carbonic acid than at another, than that the quantity of water should be augmented in the Ohio river, some seasons more than others?

We are shut up to one of the following causes in accounting for this malady. 1st, contagion; 2d, planetary influence; 3d, fungi; 4th, animalculæ; 5th, some known or unknown atmospheric influence.

With regard to the first, contagion. The most sanguine of this opinion, admit that they cannot account for the spread of the cholera, under all circumstances, by this hypothesis. If the limits of our paper permitted, we might relate numerous instances where the disease appeared without the possibility of contagion. To escape from this dilemma, the theory of contingent contagion has been started; but there is no phenomena of cholera that corresponds with other known contagious diseases. We are not, however, disposed to say that the disease cannot possibly be propagated by contagion. It may yet be discovered that cholera does spread by contagion, but that the peculiar contagion cannot extend itself unless there is carbonic acid in excess.

2d. Planetary or stellar influence has long been discarded by all intelligent physicians; first, because no change of the relative situa-

tions of the former has ever been known to produce disease, and the latter are so far (almost infinitely) removed from us, that it is beyond the reach of probability that they should affect our atmosphere.

3d. Fungi. It is claimed that these vegetations are found in a number of diseases, in puerperal fever, in dysentery, in thrush, &c.; now it is evident that the same cause does not produce all of those diseases, to advocate such a doctrine; would approach very much toward the ravings of the founder of Homœopathy. The error seems to be, that a single pathological condition in those diseases has been mistaken for the ultimate cause.

4th. Animalculæ. This hypothesis has been very thoroughly investigated by a committee of the Royal College of Physicians, in London, and, after the most scrutinizing research, is reported to be without foundation.

Lastly. Atmospheric influence, ozone, sulphur, and electricity have each had their advocates; but, to use the language of Dr. Buel, they "were soon forgotten, or remembered only to provoke a smile."

There is no other known gaseous body—if we except oxygen, hydrogen, and nitrogen, neither of which are capable of producing such a disease as cholera—so universally diffused, and which has so many sources, as carbonic acid; and no combination of earthy materials that could possibly be conceived of, is capable of producing another gas so wide in its range, and deleterious in its effects upon the human organism.

The rationale of treatment, if the above views are correct, is—

1st. To increase the quantity of oxygen to be received into the lungs. It was in contemplation by a member of this association and ourself, at the commencement of the last epidemic, to prepare oxygen and keep it confined in bladders, ready for any emergency. It since has occurred to me that a more feasible method would be to prepare filtering paper, by immersing it in a saturated solution of the nitrate of potash, then drying it, and when occasions arose for its employment, burning, and causing the patient to inhale the vapor, in the manner recommended to be pursued in asthma, in Rankin's Abstract, vol. I, page 210.

The second grand indication, to produce action in the liver, is well understood, and its importance universally admitted. It may be remarked, that the inhalation of oxygen has been tried in Edinburgh, and, it is claimed, with extraordinary success.

The third great indication, to increase the exhausted serum of the

blood by the free use of diluents slightly charged with alkaline or saline substances.

Reflections.—1st. During the prevalence of cholera, the free employment of a solution of the hydrate of lime will be found of great utility in absorbing carbonic acid from the atmosphere, in illustration of which we offer a few estimates. A room 16 feet square, 8 feet ceiling, contains a surface of 568 square feet, from which deducting a door and two windows, 45 feet, and there remains 523 feet; this surface, if covered with six coats of the solution of the hydrate of lime (whitewash), would absorb from the atmosphere in drying more than 63 cubic feet of carbonic acid. A calculation of the quantity of carbonic acid which would be absorbed in 200 days, by a solution of the hydrate of lime, from a surface equal to a Hessian acre, may be found in Libeig's Agricultural Chemistry, the sum of which is 904, 401 cubic feet. From this calculation the wisdom of the health officer at Havana will be clearly inferred, who said, during the prevalence of cholera, "Lay on the lime, and fined be he who first says, hold, enough."

2d. The importance of the removal of all decomposing animal and vegetable substances. It has been stated that more than 30 per cent. of dried vegetable matter was carbon; in the decomposition of such matter this quantity of carbon unites with double its equivalent of oxygen, thereby exhausting it and more than supplying its volume with carbonic acid. The flesh of animals is constituted of more than one-half carbon; from every pound of decomposing flesh, therefore, we shall have 14 cubic feet of carbonic acid eliminated.

3d. The importance of multiplying vegetation. It has been noticed that carbonic acid was the food of vegetables. If from 30 to 50 per cent. of dried vegetable matter is carbon, and if every pound of carbon taken from the atmosphere removes 28 cubic feet of carbonic acid, leaving in its place 20 cubic feet of oxygen, this means of depriving the atmosphere of the excess of this acid will be appreciated when we consider the weight of the *mass* of vegetation.

Finally, these views are presented with diffidence. Many circumstances which would be in their favor, and which would require a volume fully to discuss, from the want of time are necessarily omitted; others, demanding pages to fully elucidate, have been dismissed with a single sentence. We have endeavored candidly to discuss the subject, fully believing, that frequent observations will demonstrate that an excess of carbonic acid is the original cause of cholera.

PART SECOND.

CRITICAL ANALYSIS.

ART. VIII.—*Report of a General Plan for the Promotion of Public and Personal Health, Devised, Prepared, and Recommended by the Commissioners appointed under a Resolve of the Legislature of Massachusetts, relating to a Sanatory Survey of the State.* Presented, April 25th, 1850. Boston: Dufton and Wentworth State Printers, 1850. 8vo. pp. 544.

THE last half century! What an assemblage of reflections tumultuously crowd together, as we endeavor to concentrate the prominent facts presented to our minds by commerce, politics, and science—indissolubly united as they now are! During that period of time, how wonderfully has the intercourse of nations increased, by the combined aid of political changes and the application of the mechanic arts, under the guidance of maturing science; and what an amount of influences have the latter exercised upon the mass of civilized man, in leading him to renewed investigations into the applicability of their various principles, to the improvement of his condition, developing thereby, still more, his powers and means of physical enjoyment! Wherever political and commercial influences prevail, there industry, intelligence, and population thrive; science there suggests the mode of securing health; affluence, and longevity succeed. Where these influences cease in a country, every thing adverse to the well-being of the inhabitants recommence their sway; man relapses into a state of imperfect civilization, and poverty and disease follow in its train.

What vast sanatory advantages, independently of the mere matter of pecuniary interests or the gratification of a natural taste, do men devise, simply from their facilities of rapid intercourse one with another by the astonishing means of locomotion, devised since the birth

of the nineteenth century, together with the celerity with which intelligence is now transmitted from one portion of the world to the other. Formerly, departure from the land of one's birth—the "father-land," as it is affectionately termed, where the attachment appears to be the strongest—was always an occurrence attended with the most desponding anticipations; re-union, or even any intelligence, could rarely be looked for by the secluded dweller in the mountains of Switzerland. Now, the desponding desolation of separation from home seems scarcely to exist—the fatal nostalgia is banished from the list of diseases—a boon from civilization and science.

The advantage of travelling, as a hygienic measure, invigorating as it is to the nervous system, has been long known. Dr. Rush says, "a Frenchman outlives an Englishman in England; a Hollander prolongs his life by removing to the Cape of Good Hope; a Portuguese gains 15 or 20 years by removing to Brazil." If such were the benefits in Dr. Rush's day, how greatly are they multiplied at the present period, when the opportunity of visiting places distant from home, is in the power of almost all, and with facilities and even luxuries, which a prophet, fifty years ago, would have been regarded as evincing the most unequivocal signs of insanity to have predicted. Formerly, travelling was the exclusive privilege of the affluent,—now, all classes can enjoy it, with comforts to which the travellers of former days were entire strangers. There is, probably, at this time, scarcely any thing more joyous, than the excitement of an anticipated journey—travelling, it is not. There is about as much tribulation, or travail, attending the commencement of a journey of one thousand miles, as would accompany the uncorking of a bottle of champaign, and in pursuing the journey, as in quaffing the contents thereof.

There have not been wanting those, to remind us of the truly amazing improvements in locomotion, in the transmission of thought with lightning-speed, and other advances during the period we are considering, and of their effects on millions of our race. The divine, the orator, the anniversary poet, both in published and unpublished rhyme, the essayist in the daily journals, have all told us of the wonders of this period. Among them all there is one subject—that of health, which has, we believe, been entirely overlooked; every thing connected with health, in these improvements, together with the progress made in hygienic science, seems to have been unnoticed. No one, in or out of our profession, has stepped forth on the orator's rostrum, or even given a place in the philosophical essay, to exhibit the indebt-

edness of mankind to the quiet pursuits of the sanitary philosopher, or to the advantages which medicine has derived from its collateral sciences.

The science of physic, embracing as it does both the sanitary and the healing art, always unobtrusive in its efforts to relieve mankind, rarely obtains for its votaries, the monument of bronze or of marble, so often accorded to those whose profession is to desolate a land by human sacrifices. Not to solicit for it such mementos, but to redeem it from a state of neglect, in which a general ignorance of its claims is likely to keep it, we would ask, if there is no one ready to exhibit its doings during the short but eventful past of the present century? We would most respectfully direct the attention of some of our medical anniversary orators to these matters, who might perchance be in want of a suitable subject for a discourse;—it is not yet too late; we can celebrate the half century for a year to come.

We cannot, however, refrain from referring to this, and some of the most prominent subjects of interest in hygiene, especially as they all appear to be connected with the task we have undertaken, with the hope that they will be fully elaborated by some abler hand.

It is the present century alone that has witnessed the triumphs of vaccination—that simple means of giving health and life to millions, and the true value of which, few of the present day can adequately appreciate. Before the time of Jenner, one-twelfth of the human race was sacrificed by the most loathsome disease that ever afflicted the human race. Three thousand, annually, died in London from small-pox, and forty thousand in the United Kingdom; entire tribes of Indians were destroyed in our own land, and the early history of our country gives frightful accounts of its ravages. In all parts of the civilized world, the deaths from small-pox have decreased to an astonishing degree by means of vaccination, and deaths from this cause are much fewer in number, than from scarlet fever or measles; such is the experience of New-York, for forty-two years past. Now all these benefits have arisen during the present century, for vaccination was not publicly practised, in England, before the year 1798. The following year it was introduced into the United States, but so little was it known or its value understood, that in a work published in New-York, in the year 1803, entitled, "A brief retrospect of the 18th century," in 2 vols., pp. 1054, by the Rev. Samuel Miller, brother of our celebrated Dr. Edward Miller, and containing rather an elaborate account of improvements and suggestions in surgery, nothing more than an allusion is made of the discovery of Jenner, without recording any results.

During this period, also, it is that hygienic measures have effected their wonderful improvements in the health of seamen. For want of statistics in our own navy, we will refer to that of Great Britain, for a few of the prominent facts. Before the year 1800, the deaths in that service were 1 in 8; in 1811, 1 in 32; from 1830 to 1836, 1 in 72, from all causes, wounds, drowning, &c., and from disease alone 1 in 85!

We have not space, nor is this the proper opportunity to consider the gradual improvements in streets, construction of houses, ventilation, the application of sanitary principles to meliorate the effects of necessary crowding, as in schools, manufactories and prisons—those horrible pest-places, in the latter part of the 18th century. We have ventured to refer to them with the hope that the subject may be properly considered, on a suitable occasion; not forgetting that at the beginning of this half-century there was in the United States but one medical journal, in England four, and in France three; and that the subject of sanitary principles appeared to have been very little thought of, beyond the establishment of quarantines.

Now that this last statement is susceptible of proof, appears from the list of books given by the author of the work, the title of which stands at the head of these remarks; in the appendix, necessary for the formation of a sanitary library, of *sixty-three* works there recommended, *sixty-one* have been published since the year 1800. Do not think, good reader, that these sixty-one works mean only as many books; far from it. Many of them are periodicals extending through several years. To give an instance. The "Annales d'Hygiene," it is said, "completed its 44th volume in 1850." To the accuracy of this statement we can bear our testimony, accompanied, also, with some vexatious reminiscences. Being desirous two or three years since of consulting this work, we repaired to a public library for that purpose, and were shown forty and odd substantial volumes, of 500 pages each, without the scrap of an index!

Among the stars comprising the sanitary constellation, formed during the last fifty years, that, like Pleiades, sheds its "sweet influences" over the earth's surface to promote the physical well-being of its inhabitants, the last risen is not inferior to any of its predecessors, either in brilliancy or power. The book before us, although under the uninviting title of "a report," is yet, in truth, an epitome of sanitary science. It is from the pen of Lemuel Shattuck, of Boston, one of the commission appointed by the Legislature of Massachusetts, "to prepare and report a plan for a sanitary survey of the State, embracing a statement of such facts and suggestions as they

may think proper to illustrate the subject." We will not say that the duty of the commission has been well discharged, this would be far too feeble praise; for, although expecting much, the report far exceeds our expectations.

The views of the author, given at length throughout the work, are well condensed at the beginning of the report—

"WE BELIEVE *that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable;—that the average length of human life may be very much extended, and its physical power greatly augmented;—that in every year, within this Commonwealth, thousands of lives are lost which might have been saved;—that tens of thousands of cases of sickness occur, which might have been prevented;—that a vast amount of unnecessarily impaired health, and physical debility exists among those not actually confined by sickness;—that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities, pecuniary, social, physical, mental, and moral, which might be avoided;—that means exist, within our reach, for their mitigation or removal;—and that measures for prevention will effect infinitely more than remedies for the cure of disease.*"

The history of the sanitary movement is given, commencing with the doings of the ancients; then follows an account of sanitary measures in France, Germany, and Great Britain. Before entering upon the consideration of the principal subjects treated of in this book, we trust that we may be allowed a few remarks upon that part which refers to the ancients in connection with hygiene.

The author speaks of the ancient nations as being, many of them, well skilled in sanitary science. With the exception of the Jews, during the period of their wanderings, we believe that there is but little foundation for this statement. There is often a great desire to obtain the sanction of antiquity when engaged in the discussion of almost any subject, of whatever nature; and the slightest indication that it has received any attention, is regarded as a fact of great value. We would by no means disregard any facts thus obtained, whenever they are well established; but we are not of those who have so profound a reverence of ancient times, as to believe that the people who lived two or three thousand years ago were as likely to have known as much as those of the present day, of those things that must necessarily be the result of science and accumulated experience combined. "Antiquity," says Bacon, "deserveth this reverence, that man should make stand thereon, and discover which is the best way; but when the discovery is well taken, then to make progression."

Until the time of Hippocrates, medicine consisted altogether of

attention to the sick, without any guide or principle to direct it—a mere mass of superstition on the one part, and jugglery on the other. Sanitary medicine was wholly unknown. Our author states that Epaminondas, Demosthenes, and Plutarch, were "health officers." These are the first efforts that appear to have been made in the way of sanitary police of a city. As far back as these names appear to carry us, they were, in truth, all since the promulgation of the doctrines of Hippocrates; Demosthenes being contemporary with him, and the other two lived after his death.

The celebrated aqueducts of Rome were constructed about sixty years after the hygienic views of Hippocrates were known, and the paving of the city did not take place until two hundred years after that.

The celebrated cloacæ of the Tarquins are spoken of as evidences of the care of the Romans on the subject of the health of their city. They were, however, in no respects like the sewers of modern cities; their very structure, the mightiness of which is among the architectural wonders of the world, would go to prove this. Having some recollection that Pliny gives an account of these subterraneous canals, we referred to a beautiful copy of his works, presented to us as a medical fee by a highly esteemed clerical friend, and found the following passage, which appears to explain every thing about these cloacæ. It will be remembered that they were commenced very early in the history of Rome, before the city was at all populous—138 A. U. C.—*par meatus corriuati* vii *amnes cursúque præcipiti torrentium modo rapere atque auferre omnia coacti, etc. etc.*—Lib. xxxvi., cap. xv. Now what is this but a description of an artificial passage for natural, but occasional streams, to prevent the deluging of the city or the formation of swamps? The huge main, *cloaca maxima*, through which the water poured in precipitate torrents, received seven seas, streams, or rivers, the occasional floods from the celebrated seven hills; but we doubt whether any proof exists that there was any thing resembling our modern sewers, or that the houses derived any benefits in passing any of their filth into them, as is done at the present day; on the contrary, what little is known of the habits and privileges of the mass of the people, forbids the supposition.

We can obtain no better evidence of some of the domestic arrangements of the people during the period referred to, than by what is revealed to us in Pompeii and Herculaneum, and that which remains unknown for want of the like proof is probably about on the same level. A dwelling house of a wealthy inhabitant of one of the cities, judged to be so by the general arrangements of the house, and the

discovery of costly ornaments, is described by an English traveller. He says it was divided into several sleeping apartments, so exceedingly small, dark, and ill-ventilated, that if condemned criminals in Newgate were confined in similar cells there would be a rebellion in England! "The best in Pompeii."

It would appear that little or no attention was paid to the necessity of having fresh air or any thing else in private houses, although it is said that arrangements for ventilation have been found in their public edifices. This was doubtless the case, but only in them; such as temples, theatres, and similar places of public assemblage. All their architectural efforts were expended upon such buildings to the neglect of every other; and if they bear the evidences of provision for ventilation, it is because experience taught them that they must otherwise suffocate in crowds when they were brought together in their huge buildings. Some of the temples and theatres would hold 20,000, others 40,000 people. The Coliseum inclosed 90,000 persons seated, and 20,000 "promenaders" in addition! No trace of a chimney has been found in Pompeii.

Quoting from the *Edinburgh Review*, it is stated as an evidence of the care of the Romans for the health of the people, that Pliny wrote about "a fœtid stream passing through Amastris as if it were an affair of the state." This is nothing more than the celebrated naturalist might be expected to do after his appointment to a public office by the Emperor Trajan, if it was only to satisfy his conscience by making amends for the fulsome panegyric pronounced by him on his imperial patron. As regards the civilization of the Greeks and Romans, it has, we think, been greatly overrated. Refinement of a certain licentious kind, and luxury, had made great progress among the few.

> "Society grew numerous, high, polite,
> And happy. Nurse of Art! The city reared
> Its beauteous pride, her tower encircled head."

All for a privileged few, and there it ended. The masses of the people within the Roman State were in a condition of the lowest vice, ignorance, and almost savage barbarism, as any one may learn who will read the account of the revolt of Spartacus and his followers, at a time when Rome was at the height of civilization; cruelty marked their wars, their treatment of prisoners, and to a horrible extent their public shows. All the laws, as well as those in Greece, appear to have been made for the cities alone, and for the protection of a certain class; all other parts of the State, and all the other citizens were neglected or governed with all the caprice and cruelty of a military despotism; the rulers and philosophers agreeing that there was

nothing needed for the vulgar, and one of the most distinguished of the latter says, that the absence of the necessity of moral obligation among them results from the very circumstances in which they were born, but this neglect among the better sort was unpardonable. Were this the proper place for a dissertation on the subject of civilization at the period now under consideration, we could bring quotations enough from the writings of their own historians and teachers to set all skepticism on this question at rest; suffice it to say, that on this very question Seneca remarks that they had the very antipodes of it in the city; *antipodes habemus in urbe.* We trust that we shall be pardoned for our strictures on this part of the book, for we are anxious that Mr. Shattuck should receive all the credit that is due to him, and we have no idea of permitting a shadow from ancient times to fall on him, and thus bring them to any thing like an equality.

An important part of this book is that which treats of what has been done in Great Britain, although it would appear to have attracted but little attention there, until within the last twenty years. The most efficient law on the subject was passed June 6th, 1836, "for the Registration of Births, Marriages, and Deaths, in England and Wales."

"This act was brought into Parliament by Lord John Russell, the present Prime Minister of Great Britain, and was advocated by him in a very able speech, in which he said, 'It was most desirable that a general system of civil registration should now be carried into effect. It was a most important subject: important for the security of property; important to ascertain the state and condition of individuals under various circumstances; important to enable the government to acquire a general knowledge of the state of the population of the country, that there should be a general registration of births, marriages, and deaths.' Sir Robert Peel, Dr. Bowring, Lord Morpeth, and other distinguished members of Parliament, were also its warm supporters.

"Under the operation of this system, a central office was established in London, presided over by an officer styled the Registrar-General of Births, Deaths, and Marriages. England is divided at present into 11 divisions, 623 districts, and 2189 sub-districts. In each district there is a superintendent registrar; and in each sub-district, a registrar. London is divided into 5 divisions,—east, west, north, south, and middle,—36 districts, and 135 sub-districts. Copies of the records of all births, marriages, and deaths, which take place during the preceding week, are made by the registrars of the sub-districts, every Saturday evening, and transmitted every Monday to the superintendent registrars, and by them transmitted to the Registrar-General. An abstract is made of these returns on the same day, and published on Tuesday, and accompanied by remarks on the state of health and weather during the week. Notwithstanding the greatness

of the metropolis, containing over 2,000,000 inhabitants, nearly equal to three times the population of Massachusetts, the returns are made with so great regularity that it seldom happens that a single one is missing. The deaths by each disease are shown, the prevailing epidemics recorded and exhibited, and every one is traced from its origin to its termination. A quarterly report, comprising an abstract of the returns from all the districts of England, is published; and from all these documents an annual report is prepared. Nine annual reports have been published; the first three by T. H. Lester, Esq., the first Registrar-General. Since the death of Mr. Lester, George Graham, Esq., has held the office, and he has made the last six reports. These reports contain a vast fund of information, of the greatest value, relating to the life, the health, and the welfare of man."

After an elaborate account of the results of registration in England, our author comes to the following conclusion:

"1. *It is proved* that there die annually, in each 100 of the population, of the whole of England, 2.27; and of the most healthy district, 1.53; and of the most unhealthy district, 3.58. And that the living to one death are, in these districts, respectively, 44, 65, and 27.

"2. *It is proved* 'that the various forms of epidemic, contagious, and other diseases, caused or aggravated, or propagated, by atmospheric impurities, produced by decomposing animal or vegetable substances, by damp and filth, and close and over-crowded dwellings, prevail amongst the population in every part of the kingdom, whether dwelling in separate houses, in rural villages, in small towns, or in the large towns, as they have been found to prevail in the lowest district of the metropolis.'

"3. *It is proved* that disease and mortality fall more heavily upon those who live in large towns and populous places, than in the country districts, and particularly upon those who live in narrow streets, confined courts, damp dwellings, close chambers, cellars, undrained, unventilated, and uncleansed; and affect most severely the infantile portion of the population, and the heads of families between twenty and thirty years of age.

4. *It is proved* that, in such situations, the average duration of life is five to twenty-five years less than it might otherwise be; and that, during this curtailed period of existence, the working power of those who live, and their capacity for enjoyment, are greatly diminished by a constant depression of health and spirits, and by the active attacks of fever, cholera, scrofula, and consumption.

5. *It is proved* 'that such diseases, wherever their attacks are frequent, are always found in connection with the physical circumstances above specified; and that where these circumstances are removed by drainage, proper cleansing, better ventilation, and other means of diminishing atmospheric impurity, the frequency and intensity of such diseases are abated; and where the removal of the noxious agencies, and other causes of disease, appears to be complete, such diseases almost entirely disappear.'

6. *It is proved* that the annual mortality might be reduced, in the whole kingdom, from 2.27 per cent., or 1 in 44, to less than two per cent., or 1 in 50; and in all large towns, as low as that general average.

7. *It is proved* that this unnecessary excess of mortality above 2 per cent., occasions an annual loss of more than 50,000 lives in the United Kingdom,—'greater than the loss from death or wounds in any wars in which the country has been engaged in modern times;' and that the causes of these unnecessary deaths occasion at least twenty cases of unnecessary sickness, on the average, to each death, or one million cases annually, which might have been prevented.

8. *It is proved* that of the 43,000 cases of widowhood, and 112,000 cases of destitute orphanage, relieved from the poor rates of England and Wales alone, the greater proportion of deaths of heads of families occurred from specified removable causes; and that the average of their ages was under forty-five years, or thirteen years below the natural probability of life, as shown by experience.

9. *It is proved* that the preventable causes of disease, and the unnecessary mortality, impose upon the people immense pecuniary burdens which might be avoided.

10. *It is proved* that the younger population, bred up under noxious physical agencies, is inferior in physical organization and general health to a population preserved from such agencies; and that these adverse circumstances tend to produce an adult population, short-lived, improvident, reckless, intemperate, immoral, and with excessive desires for sensual gratifications."

The Sanitary Movements at Home comprise, 1st, the laws which have been passed in Massachusetts from the year 1692 on the subjects of drainage, sickness, insanity, quarantine, and some special subjects, to the year 1849, the most important of which were the registration laws; 2d, means for curing diseases, under which head is given an account of medical science, teaching, literature, etc., as it has existed for many years in Massachusetts; and 3d, the sanitary condition of the State at various periods, from 1618 to the present time. The conclusions at which the author arrives are:

"1. *It is proved* that there is a great difference, in this State, in the longevity of people living in different places and under different circumstances.

"2. *It is proved* that causes exist in Massachusetts, as in England, to produce premature and preventable deaths, and hence unnecessary and preventable sickness; and that these causes are active in all the agricultural towns, but press most heavily upon cities and populous villages.

"3. *It is proved* that measures—legislative, social, and personal—do not at present exist, or are not so fully applied, as they might be, by the people, for the prevention, mitigation, or removal, of the causes of disease and death.

"4. *It is proved* that the people of this State are constantly liable to typhus, cholera, dysentery, scarlatina, small-pox, and the other great epidemics; and to consumption, and the other fatal diseases, which destroy so many of the human race in other parts of the world.

"5. *It is proved* that the active causes of disease and death are increasing among us, and that the average duration of life is not as great now as it was forty or fifty years ago."

Some very remarkable statements follow, showing that sickness and mortality are on the increase, both in this country and in England; our limits, however, will not allow us any thing more than a passing notice of a fact so contrary to general belief; nothing can exhibit better the value of statistical information on this subject.

A plan for the sanitary survey of the State, comes next in order, commencing with a recommendation that the laws of the State, relating to public health, be thoroughly revised and improved. And as the first measure to set the movement into active operation, a general board of health is advised to superintend every thing embraced by the proposed law. This board is to be composed of two physicians; one counsellor at law; one chemist or natural philosopher; one civil engineer; and two of other professions. In addition to this, a local board of health is suggested, for every city and town, to see that the health laws are executed in their respective districts, with necessary officers, such as a secretary, and health officers appointed by the local board. Reports of the sanitary condition of these districts, and successive enumeration of the inhabitants, with all the facts relating to their ages, domestic condition, occupation, education, house accommodations, to be a part of the duties of these local boards: ample directions being given for obtaining and recording such facts.

As an indispensable proceeding for the perfecting of the sanitary laws, Mr. Shattuck speaks of the completion of the laws relating to the registry of the births, marriages, and deaths, so as to be carried into effect in every city and town of the State. The importance of this no one can question, for without facts which exhibit the comparative health of the different portions of the State, which a registry alone can furnish, no advances can be made in sanitary reform. The necessity, also, of closely observing and recording atmospheric phenomena, is next urged in connection with the registration.

In laying out new towns, the importance of making provision for drainage, sewerage, paving, cleanliness, and light, are exhibited in the aspect demanded by their importance. The last mentioned, that of light, although it may not be thought of so much im-

portance as many others, the author considers necessary in all arrangements for dwellings. Having for many years noted the effects of an absence of light, in the development of disease, and in the protraction of convalescence, we must add our testimony to the value of this agent in the crowded courts and cellars in large cities—a genial glow of moderate solar heat is indispensable for health, and will tend to prolong life. In this we have the testimony of every age, and of every country. It will perhaps be a good illustration of the want of light in the dwellings of the Romans, to refer to the fact, that they were wont to ascend to the housetop to plunge into a solar air-bath, or *solaria*, as it was called. Pliny says of his uncle, *Post cibium, æstate si quid otii, jacebat in sole.* In the Grecian mythology, light was joy—Phœbus Apollo—the torch of life was likewise the healer; these people seemed to have discovered its importance from suffering so much by its absence.

School-houses, churches, and other public buildings, should be constructed with reference to health in all their internal arrangements; and that before the erection of any such dwelling, or even for a public lodging-house, it is proposed that the builder be required to give notice to the local board of his intention, and of the sanitary arrangements he proposes to adopt.

The local boards are next required to mitigate, as far as is in their power, the evils arising from over-crowded lodging-houses and cellar-dwellings. This is another very important suggestion, for we believe these places are the chief means whereby zymotic diseases spread in cities. Cellar-dwellings have received particular attention in many of the cities in Europe; and in Liverpool, 20,000 people were, in the year 1849, removed from the cellars in that city. We are not aware that any attempt of this kind has been made in any part of the United States; although an enumeration of the inhabitants of these subterranean abodes has been made in the city of New-York, under the direction of the chief of the police, in March, 1850. The original documents attested by the captain of each police district, are now among the archives of the New-York Historical Society, by which it appears that 18,456 persons live in 3,741 cellars, without any other room.

Open places, and wide streets are recommended to the consideration of such as have the planning of cities and villages.

The general board of health should, the author advises, cause special sanitary surveys of cities, towns, and localities, from time to time, to ascertain the effect of mill-ponds and other collections and

streams of water on health; the amount of sickness in different localities and in different professions. This latter is considered, with reference to the pecuniary advantages and the general sanitary purpose it would subserve, at length, but which it is impossible here to notice further than a reference to the fact.

Sickness in schools, periodical and especial vaccination, the prevalence of consumption, abatement of nuisances, evils of intemperance, inquest on dead bodies, and the registration, care, and management of the insane and idiotic, are next considered.

The horrible evils of the interment of the dead in cities, receives its proper attention at the hands of our able author, and we trust will not be without its effects in our larger cities.

Our limits will not allow us to do any more than to refer to the principal subjects treated of in the remainder of this valuable work. They are on the sanitary regulations for seamen; effects of emigration; sanitary associations; bath-houses; sewerage of cities; sewerage in agriculture; effects of patent medicines, and nostrums; sanitary education; adulteration of food, medicine, and drinks; professional sanitary records; family records, and personal sanitary examinations.

The reasons for approving the plan recommended, and answers to objections, occupy about fifty pages, and of which, for want of space, it is impossible to give an analysis; nor indeed do we think it at all needed. It seems almost unnecessary in this work to treat of these subjects, except that it may leave nothing undone where so important a subject as public health is considered, and when it is kept in mind that it is entirely new; and that of course a vast amount of information in relation to it must be diffused.

The closing appeal to physicians, clergymen, to educated men of all classes, to the wealthy, to the people, etc., etc., is fraught with interest, and brings home the subject of health in a way that should interest every member of society. We will quote but one passage:—

"The sanitary reform we advocate is not like some of the popular reforms of the age. It rests upon no visionary theories, conceived alone in the closet, or by some impracticable enthusiast. It aims at the establishment of no abstract principle, with no definite, practical bearing or application. It is not radical in its character or tendency; does not seek to overturn nor upturn any social, political, or religious sentiment or institution; nor abrogate any constitutional or statute law. It interferes with no man's rights,—pecuniary, social, political, or religious. But it takes things as they are; looks upon man as it finds him; allows him to enjoy the institutions with which he is favor-

ed; and *gives him the means of living longer, and of enjoying more while he does live.* There is in this no transcendentalism, or other ism or ology, to which any reasonable objection can be made; though it transcends, in its simplicity, in its practical utility, and its substantial, every-day, universal benefits, all other reforms. Every person, in every station, can do something to promote this reform; and every such effort, wisely directed, will increase the amount of his own individual enjoyment, and add to the aggregate enjoyment of the people of the whole Commonwealth."

The interesting appendix, occupying two hundred pages, is replete with a large amount of varied information in illustration of the principles contained in the body of the work.

We doubt if there has appeared any work for many a year in our country, that is of more real interest to the community than this, whether we regard it as replete with suggestions for the promotion of personal health, or as a great political document intended to show the true mode whereby the physical and intellectual powers of a people may be fully developed. It being the first of the kind ever published in this country, imparts to it an interest of more than ordinary nature; it being the best of the kind ever published, adds greatly to this interest and to the reputation of the author; and we feel assured that the objects aimed at must ultimately be attained when thus presented.

J. S.

ART. IX.—*The Transactions of the American Medical Association, Instituted* 1847, vol. 3. Philadelphia: Printed for the Association, 1850, 8vo. p. 499.

WE have here presented for our notice the third volume of the Transactions of the American Medical Association, composed of the proceedings, reports, etc., of the third annual meeting, held at Cincinnati, in May last. It would be vain for us to make the attempt to present our readers with all the matter of interest contained in this comely octavo volume. We shall therefore confine our notice to some of the leading points of interest contained in each of the reports, as they were presented to the Association, by the General and Special committees. The volume opens with the minutes of the third meeting, a report of which appeared in the number of this journal for March, 1850; we shall therefore pass them, and proceed to notice briefly the

Report of the Committee on Medical Sciences.

The materials that compose this report are derived mainly from

the periodical medical literature of our own country. The selections are well and judiciously made,—so much so, that they present, in a manner most satisfactory, the progress of medical science in this country. We observe some contributions of exceeding interest that were made direct to the committee, by correspondents. Some of these papers are worthy of a more extended circulation than they can receive by means of the Transactions alone. We shall, therefore, as occasion will permit, transfer them to those pages of this journal devoted to the American retrospect. Our present space will only allow us to mention some of them in this place. Prof. Wyman's *Observations on Lymph Corpuscles, visible in dried blood;* Dr. Ray, *on Etherization in Insanity;* Mr. J. B. Richards, *on the Causes of Idiocy;* Dr. Breed, *on the Influence of Evaporation and Pressure upon the formation of Blisters;* Dr. Emerson, *on the Causes of Mortality in Children of the two Sexes, and on the Influences Operating to Change the Number of Births, and also, the Proportion of the Sexes at Birth*; and Dr. Moultrie, *on the Effects of Anæsthetics on Vegetable Organs.* At the close of this report there are some excellent remarks on a point to which we alluded in ourn otice of the second volume of the Transactions, viz., the necessity of restricting the committee to selections from American journals and contributions, and we find it difficult to close our notice of this report, compiled by the chairman of the committee, Dr. Usher Parsons, without making the following extract:

By adherence to this restriction, the future reports of American intelligence will be annually growing richer. Master minds are now employed in the various departments of natural and experimental science. Leidy and others are toiling with zeal and industry in our large cities; and Agassiz, Guyot, Horsford, and Wyman, have girded themselves to the work in a scientific institution under the fostering care of ancient Harvard, whose light, like the rising sun, is gilding the east, and shedding its beams over our wide-spread country to warm and fertilize the American intellect. Already in the Valley of the Mississippi, where, within the memory of the living, the red man was lord of the domain, beautiful cities adorn the banks of the majestic rivers with colleges and seminaries of learning, where gifted minds are diffusing the blessings of science and literature; and in this lovely city, the "Queen of the West," where the Indian council-fire blazed, and war-whoop echoed, we behold the sublime spectacle of many hundred votaries of the healing art assembled from all sections of the Union, thirsting for knowledge and eager for mutual improvement. Who can contemplate the scene without a thrill of professional enthusiasm, or doubt for a moment that a rich harvest of American medical science will ere long be annually collected and diffused through the instrumentality of this Association?

Report of the Committee on Practical Medicine and Epidemics.

This report is an admirable resumé of epidemic cholera as it prevailed in this country, in 1849. It enters, as fully as the materials from which it was taken will admit of, into the statistics of the disease in the principal cities of the Union—enters fully into the consideration of its apparent contagiousness, and canvasses well the points of fact and theory that militates with or against it. The following remarks close that portion of the report relating to this subject:—

For these reasons, numerous and cogent, we believe that cholera is portable but not contagious; that it is dependent for its accidental power, rather upon density of population and personal uncleanliness, than upon any other causes. An atmosphere highly charged with emanations from living bodies, seems to be the chief stimulant of the choleric influence. Next to this, the most powerful auxiliaries seem to be habits, passions, and food of a depressing character; whilst the influences of every kind which usually determine the blood to the intestinal surface, give to the diseased agency its most dangerous direction.

On the subject of the prophylaxis of belladonna against the inroads of scarlatina, we find it stated that one of the committee having been impressed by the force of the evidence in its favor, "endeavored to put it to the test of a prolonged and varied experiment, with results of the most favorable character." Bearing upon this matter we find the following:

It may not be amiss to say, that with one single failure out of thirteen experiments made in several different years, scarlatina has been apparently divested of its contagious power when treated by belladonna. In the last experiment recently made, one of eight children in a single family was attacked with severe, well-marked scarlatina. The other children being immediately placed under the use of belladonna, were permitted to have constant access to the apartment of the one attacked. All of them escaped the disease. Without segregation, so far as the subject has been examined, with but one exception, the unprotected have been thus preserved from the disease. The greatest difficulty lies in the scarcity of good extract of good belladonna. But this may be obviated so soon as the demand will justify experiments for its better preservation. The best formulary is that which holds the alcoholic extract in solution in camphor water, and of this a quarter of a grain a-day may be administered to a child of three years of age. These suggestions are made chiefly with a view to attract attention of rural physicians to an experiment which may be best examined in the very limited localities in which they reside.

The appendices to this report are two in number. The first is

by Dr. Pancoast, *on the cure of a particular form of Aphonia by the Inhalation of a Stimulating Vapor.* Aphonia following an ordinary cold, existing without any perceptible organic lesion—the voice being reduced to a faint hoarse whisper—attended with no pain on attempting to talk; but a sense of fatigue as though there was some obstruction to the passage of air through the larynx. The difficulty is believed to be a paralyzed condition of the muscles of the larynx, whose business it is to dilate the rima glottidis during the act of articulation. The remedy proposed is the inhalation of chlorine vapor; Dr. P. thinks that this acts merely as a local stimulant, and that iodine, or any other exciting vapor, would effect similar results. Cases are cited in illustration of the benefit derived from the treatment proposed.

The second appendix is by Dr. J. Reynolds, *on the Typhoid Fever and Dysentery, as they have appeared in the epidemic form, during the last four seasons, on Cape Ann.* An abstract of this interesting paper will be given in the American retrospect of a future number of this Journal.

Report of the Committee on Medical Education.

This report goes over ground in many respects well-trodden, and presents no new *facts* for our consideration. It contains views which we most heartily disapprove, and which, it will be remembered, did not meet the unanimous approbation of the Association.

Report of the Committee on Medical Literature.

This report will be read with a degree of satisfaction by the great mass of the reading portion of the profession. The author of it, Dr. A. Stillé, has proved himself somewhat thoroughly versed in matters pertaining to the present state of our medical literature. In most instances he here speaks freely, yet fairly, of the character and tendencies of our periodical literature; and many of his suggestions, though evidently thrown out with great warmth of feeling, are worthy of an attentive and careful consideration. In the latter portion of this report we find it stated, that "during the last half-century, a very considerable number of original medical works has issued from the American press;" and, again, "with a few remarkable exceptions, our medical works exhibit a low degree of scholarship, both general and professional." That the first of these statements is true, and worthy of record as a fact, is as certain as that the second is unjust, to say the least of it. We were not a little surprised to see this latter statement come from one, whose opinion we have been wont to look upon as worthy of a good degree of credit, on all matters pertaining to the

subject under consideration. That many of the native medical productions of this country, written by men of great practical experience, might have been much improved in style, we are as free to confess as the author of this report is to believe; but, that only a "*few*" of the writings of our physicians exhibit a good degree of scholarship, smells too rank of gross assertion, for us to spend time or tax the good sense of our readers in attempting to disprove. We hold, that medicine is a science based upon facts, and as susceptible of demonstration as such, as readily and fairly as any of the sciences; and that it is not aided in the least in its great objects and aims, by that hyperspenic knowledge that borders upon transcendental philosophy, which divests it of all its practical character, and mystifies all its practical workings.

No argument need be adduced here, to prove that practical medicine and surgery has, in *many* cases, lost nothing in this country by the "low degree of scholarship," of which the author of the report complains. But to return—a summary of the views contained in this report will be found in the resolutions appended to it, which were published in the 5th volume of this journal, page 134. As an appendix to the report, we find classified tabular statements of the principal works and articles published in the journals, or separately, during the year of service of the committee.

A synopsis of two of the reports which follow, may be found in the resolutions which are recorded on pages 123 and 125 of the 5th volume of this journal; we shall therefore pass them by to notice the

Report of the Committee on Public Hygiene.

Perhaps there is no subject in the range of scientific medicine that requires for its elucidation so much experimental research and scientific generalization, as that of public hygiene. However much individuals may be able to do in this matter, towards arriving at correct and useful results, of this much all must be convinced, that the public good demands that government should institute an extended and careful inquiry into all that pertains to this subject. The chairman of the committee of this report, Dr. Joseph M. Smith, has selected as the theme for his contribution to the report, the sources of typhus fever, and the means suited to their extinction. The inquiry instituted, is divided into two parts, "the first relating to the origin of typhus, from the excretions of persons in health; and the second, to its origin from the excretions of persons in disease." It is not consistent with our limits to follow the able author of this inquiry, over

the extended field of learned research which he has travelled; we shall, therefore, give our readers the following extract from the close of the report, which will enable them to form a good estimate of the practical results to which he has arrived.

It is a law of the human economy, which impressively illustrates the wisdom and benevolence of the Creator in respect to the social and domestic relations of men, that the effete materials which are so abundantly and continuously exhaled from their lungs and skin, in health, are never hurtful or offensive to them so long as they live in a space sufficiently ample to allow them to breathe a free and pure atmosphere, and their bodies are preserved clean. It is in reference, therefore, to the transpirations of the body that ventilation and personal cleanliness are so clearly demanded by the cardinal laws of hygiene; and as these laws have their foundation in the normal physical relations of man to the external world, the violation of them by crowding individuals into spaces or situations in which the air becomes surcharged with carbonic acid and the other matters of exhalation, is no less productive of disease than is the infraction of any other natural laws on the undisturbed operations on which health depends. It is by the failure to observe these salutary principles that densely populated localities engender the evils of which we have treated.

Though the mode in which we have endeavored to discuss this subject is more especially interesting to the practical hygienist, yet it brings into view questions relating to organic nature which challenge the notice of the chemical philosopher. We have seen that the quantity of pulmonary and cutaneous excretions from a population of 200,000 adult persons, in one month, is 20,000,000 lbs.

This amount, of course, increases proportionately as greater numbers are made the basis of the calculation; such, for example, as the population of the city of New-York, Paris, or London. Now, the principles which constitute the effete matters of transpiration of a city population are derived, for the most part, as they are elsewhere, excepting the water, from animal and vegetable substances, the products of rural districts. These organic substances gathered by human industry, and transported to cities on rivers, railroads, and other highways, and distributed to the inhabitants, serve the purpose of human sustenance. Having answered this end, they are evolved as effete materials from the body, and mostly returned to the country; the gaseous portion finding its way thither by virtue of its diffusive property, and the remaining volatile parts on the wings of the wind. Now, the interests of agriculture in common with those of private and public hygiene, demand that to such a return there should be no hinderance. Allowed to take their natural course, their elements enter into new arrangements, and the resulting compounds, descending to the earth with the dews and rain, and serving as the pabulum of plants, reappear in vegetable forms, fitted as nutriments for man and brute. If this order of nature, so beneficently contrived,

and so happily elucidated by Dumas, Boussingault, Liebig, and Fownes, be disturbed, or rather, if but a comparatively small part of the organic matter evolved from the lungs and skin be retained and accumulated in the stagnant air of human habitations, or become attached to garments, bedding, furniture, &c., it may be metamorphosed into an agent destructive to life; and, consequently, so much be withdrawn of the materials designed for the nutriment and growth of plants. In thus adverting to the mutual physical dependencies existing between man and the lowest orders of organic nature, we arrive at the conviction that it rests with the people or rulers of a city to decide the question, whether the matter transpired from their bodies shall be dispersed over agricultural districts, and, in their circle of mutations, be again measurably returned to them as wholesome food, or be retained in their dwellings and transformed into a principle productive of disease.

In perhaps no other mode of investigation than that pursued in the preceding inquiry are we enabled to form a just estimate of the value of personal and domestic cleanliness, and so fully to perceive the importance of making ample provisions in plotting the streets and courts of cities, and in constructing dwellings, workshops, factories, and public edifices, as prisons and alms-houses, for securing the advantages of ventilation. If it be ascertained what extent of space, and what degree of perflation, or change of air in a habitation are requisite for the health of a single individual, it will not be difficult to calculate what extent of area, and what arrangements for supplying fresh air are necessary to preserve any number of persons or families in a neighborhood or city from suffering from their own exhalations. It is said by the register-general of England, that "the space allotted to the sleeping rooms of many public institutions in towns is too small." And he remarks, that "it should in no case be less than eight feet cube (= 512 cubic feet) to each person, with proper apertures for the removal of the breath. If the air were removed twice as fast, a room of 500 cubic feet would afford the same advantages with regard to health as a room of 1000 feet; but it is a difficult matter to remove air from a room with double velocity—more difficult and expensive than to make the rooms at least on hand of sufficient extent in the first instance. The mortality in crowded rooms, if carefully investigated, would no doubt be found to be in a certain inverse ratio to the space, a death marking every degree of concentration of the expired atmosphere."

It is demonstrated, in the Parliamentary Reports on the sanitary condition of the lower classes in England, that among the causes of disease in cities, there is none more extensive and active than a deterioration of the air produced by the poor, overcrowded in ill-ventilated dwellings, and by operatives and trades-people, congregated in small and confined apartments. As in such situations, typhus and other forms of disease unquestionably originate, it follows that the means of preventing the evil is to limit the number of inmates in apartments of given dimensions; and to provide dwellings and fac-

tories with suitable apertures and sufficient space around them for free ventilation. Such sanitary measures, with attention to personal cleanliness, carried into effect by an efficient police, would put a period to the prevalence of the disorders referred to; and, at the same time, minister a wholesome rebuke to the mercenary spirit of proprietors and landlords. As there are legislative enactments prohibiting the overcrowding of emigrant ships, why should not legal provision be made to prevent the overcrowding of habitations in cities? For such a law there are precedents. In 1563, Queen Elizabeth commanded that in London "one dwelling-house should not be converted into more;" and, in 1580, she "published a proclamation forbidding any dwellings to be erected on new foundations, within three miles of the city gates; and that only one family should inhabit each house."*

There are two appendices to this report; the first, *on the Sanitary Condition of Massachusetts and New England*, by Dr. Edward Jarvis; and the second, *a Report on the Hygienic Characteristics of New Orleans*, by Dr. J. C. Simonds, both of which are ably and judiciously prepared, reflecting much credit upon their authors, and are deserving of the particular attention of the readers of the volume.

(*To be continued.*)

BIBLIOGRAPHICAL NOTICES.

Art. X. *Lecture Introductory to the Course on the Institutes and Practice of Medicine in the Medical College of the State of South Carolina.* By Samuel Henry Dickson, M. D. Charleston, South Carolina: John Russell. 1850. 8vo., pp 24.

We are somewhat given to musing. When indulging in this indolence of thought, we are apt to allow the mind to revisit the past, and the scenes thus renewed in the memory present themselves in a softer and subdued light, like the view of a landscape, tranquil and unbroken in the distant obscurity. While indulging in a reverie of this kind, and thinking of that episode in the life of our friend, the author of this address—his short sojourn with us—we were unexpectedly gratified by receiving a copy of his production. It takes but little effort

* Brewster's Edinburgh Encyclopedia, Article, London.

to embody our fancies when we have the living thoughts before us; so we shook our friend cordially by the hand, and seated him comfortably in a good large easy-chair, so much needed for his occasional infirmities, and entered into an agreeable and profitable conversation on professional matters.

We found him of the same amiable and kind disposition and courteous deportment as when he left us, contented with the aspiration "Laudori laudatis vivis," as the height of his earthly ambition.

We like his unwavering attachment to his profession; he spoke to us in his own pure and earnest style of the beauteous fabric of the Institutes of Medicine, composed as it is of the different departments of science. There is more real light, knowledge, and certainty in medicine than it is usual to allow; more than in the boasted claims to precision in mechanical movements, so much beyond control when steam directs them, with its explosions destroying a hecatomb of victims; more than the chemist can give on the nature of allotropism and of isomeric bodies, "in which the very same proportions form substances as different as charcoal and diamond;" more than in the knowledge of catlysis, light, heat, electricity, etc. "My dear Doctor, what do you think of law as compared to the certainty existing in medicine?" asked we. "Law," replied he, "is undecided in all its points except the necessity of holding on to the wretched anchorage of 'precedents;' so of statesmanship, financial questions, banks, sinking funds, taxation in all shapes, and any other question in politics, being all matters of dispute." We pondered well on his remarks in illustration of these subjects, and he is right.

In speaking of quackery, we thought the good Doctor rather too indulgent; it is the fault of an amiable disposition to look on the bright side of every thing, and, even when the means are condemned, to commend the motives.

We cannot detail the whole of our conversation at this interview on the various topics of medical science, but will repeat one which is at present attracting much attention throughout the civilized world; that is, public hygiene.

All civilized communities now give it a large share of attention, although, as I have elsewhere mentioned, by no means the share to which it is justly entitled. Perhaps we owe the interest taken in it to the repeated incursions of pestilence, which not only in modern, as in ancient times, destroy in great numbers the lives of the poor, but now, as never before, have impaired the comfort and attacked the interests of the rich, by interfering with that commerce upon which they are, individually and collectively, dependent, and which, at the

same time, renders them more susceptible to its terrible consequences, and more liable to its inflictions, than heretofore. Be that as it may, an enlightened philanthropy regards the masses with an attention unprecedented in past ages, and inspects their condition with an anxiety never felt till now; calculates the necessity of food, and air, and light; inculcates upon them the propriety of temperance and cleanliness, and, in many glorious instances, devotes itself, by precept and example, to lead them in the way they should go. Governments, whether general or municipal, dare not now neglect altogether a topic so important, and quarantines, and public baths, and ten hours' bills, and emigrant passenger acts, and boards of health, and inspectors of nuisances, have everywhere, directly and indirectly, sometimes in right, and sometimes erroneous courses, set out upon the great effort to improve the physical condition of communities, and save them from disease. Meanwhile, science ascertains, for the instruction of all concerned, how much air, of pure composition, is necessary for each individual, how it is apt to be vitiated, and how it may be again depurated; what food is nourishing and salubrious; loudly denouncing the ultra density of certain city populations, and the poisonous result of some of the modes of living there, as in cellars and unwindowed apartments. Doubtless, some steps thus taken are astray, and others unnecessary—some things said and done are unseasonable and exaggerated; but the most cheering hopes are to be entertained as to the result of the whole enthusiastic movements. Streets and squares will be henceforward opened, and better paved, and lighted, and sewered; domestic architecture will be conducted upon improved principles, and private dwellings and public edifices, like the House of Commons and the halls of Congress, be better ventilated. Men will not be allowed, either at sea or ashore, to be pressed together like brutes in penfolds, or slaves during the horrors of the middle passage.

After some other chat on matters of personal reminiscence, we were sincerely sorry to be obliged to part, but not before our friend uttered the following characteristic sentiment.

To the physician it is given, above all other men, to derive his happiness from the happiness of others, and to indulge, at the same time, a refined and elevated selfishness, as fully compatible with the widest and most ennobling philanthropy. J. S.

ART. XI.—*A Lecture introductory to the course on Materia Medica and Pharmacy, for the term of* 1850–51. By B. W. McCREADY, M. D., Professor of Materia Medica and Pharmacy in the College of Pharmacy of the City of New-York. New-York, 1850. 8vo., pp. 16.

THIS lecture is an argument against the doctrine of free trade as applied to the vending of drugs, and a defence of the necessity of "legal

enactments for regulating the dispensing of medicines and the licensing of apothecaries." The reasoning is deliberate and conclusive, and the style is chaste and unostentatious; altogether it is worthy of the head and heart of the author. As a specimen of Dr. McCready's manner and matter, we quote the following, which we have no doubt will be duly appreciated by the reader:

In this city we all know there are laws regulating the sale of medicines, but we all equally know that they are not enforced. The state of public opinion will not permit them to be enforced, and for all practical purposes they are in fact a dead letter. Any one who chooses, whether a well-informed and well-trained apothecary, or one who is acquainted merely with the routine of the shop, whether a young doctor as ignorant of drugs as he is innocent of patients, or a shrewd countryman, who having failed in every thing else thinks he will try his hand at preparing and selling medicines, or a poor and dishonest foreigner, who on landing upon our shores unites the charlatan with the apothecary, since he can thus bring his impudence and pretension to the best market,—every one, I say, can without let or hinderance open a shop and vend the medicines that are intended to heal, and the poisons whose office is to kill, to all applicants.

Is this wise? Is it safe for the public? Does it tend to promote the dignity and usefulness of our calling? The doctrine of free trade, which in the abstract I neither undertake to defend or impugn, has taken a fast hold of a large portion of the public. Things, it is said, on the principle of supply and demand, will regulate themselves, and it is unwise to interfere, by legislation, in the government of that which will better govern itself. In Germany, in France, in England, the law interferes in a great number of matters which experience proves can safely be left to the control of circumstances. At all events, these countries are so differently situated that their example affords us no safe guidance.

In all the matters which form the great bulk of commercial intercourse, every man may safely be left to his own judgment—and the true interest of the dealer. Every one may determine for himself whether an article of furniture is well made, whether a coat suits him, or a picture is to his taste. If he errs, he corrects his error by suffering a little inconvenience from its consequences, and if he is wilfully deceived by the dealer, the latter is directly visited by the consequences of his dishonesty. The purchaser of a medicine is no judge, and cannot be a judge, of the article which he buys. Whether a drug be good or bad, or whether a prescription be rightly compounded, or whether it contains a cheap substitute for some article not in the possession of the druggist, he neither knows nor has the means of knowing. He must depend on the honesty and the knowledge of the druggist. And this dependence is enhanced by the value of the object to which the drug is destined. It is not a consideration of dollars and cents; it is not a temporary inconvenience or the an-

noyance of a taste ungratified; the mischief possibly done cannot be weighed or counted, cannot be estimated at its money value; it may crush the heart, it may overshadow a lifetime; it is health and disease, it is life and death, which hang trembling in the balance.

Again, for any gross and palpable deceit on the part of the dealer, a man may have his remedy at common law, and the matter may safely be left to a jury of his countrymen. Their good sense can be trusted in subjects of which all men have some knowledge. But if in a nicely balanced case, where life hangs trembling on the issue, a medicine prescribed with a particular intent proves, through the ignorance of the druggist, inert or injurious, and death ensues, is there any remedy? Will punishment be meted out to the offender, so as to make him a warning and an example to others? Let the survivor try the courts and he will soon be able to reply. It is no answer to say that the law cannot take cognizance of matters so nice and uncertain, in which the injury can be estimated only by theory or opinion. Confine the business to competent and authorized persons, and you greatly diminish the chance of such an occurrence.

2d. No slender amount of information is required to enable the druggist properly to select and purchase his stock in trade. By buying of reputable dealers, and by paying a fair price, he will be sure, in the majority of cases, to obtain reliable articles; but when he sees of two drugs going by the same name, and to him appearing similar or identical, one can be purchased at half the price of the other, his inclination to obtain the cheapest is greatly enhanced by his inability to judge between the two. Many of the articles of the vegetable materia medica become deteriorated and inert from time. They may have been perfectly good when bought, but have been spoiled by keeping, and the druggist, with the most honest intentions in the world, may deceive his customers simply through his want of the necessary knowledge. Some of our most powerful chemical preparations, as hydrocyanic acid, undergo spontaneous changes. In others, particularly those which are new to the trade, the druggist must, in judging of their goodness, depend largely upon his own resources. I have seen chloroform brought to a patient for inhalation, so impregnated with chlorine as to render its vapor highly irritating, and largely increase the risk, always to some extent run in the use of that potent remedy. The high price of many of our most active and valuable medicines, particularly of those which are the product of the discoveries of modern chemistry, offers a premium for their sophistication by unscrupulous dealers. The adulterations in these cases, made, for the most part, by men familiar with practical chemistry, are not to be detected by the sight or taste. They demand not only chemical knowledge, but chemical knowledge which has been directed and trained in a particular channel.

Finally, the varying strength of active medicines, obtained from different shops, is not only a source of disappointment to the physician when an inefficient or inert article is obtained instead of a prompt and energetic one, but the converse fact, the substitution of a good for an

inferior article may be attended with danger to the health, nay, to the life of the patient. Tincture of the seeds of colchicum may be procured in the city, innocent, even in large doses, of any very deleterious effects, while less than a teaspoonful of really good tincture has been followed by dangerous purging. An instance is recorded, and it is probably by no means the only one that has occurred, in which a patient, accustomed to the daily use of hydrocyanic acid, during a temporary absence from home obtained his prescription from a shop different from the one he commonly frequented. His usual dose killed him.

3d. The activity, nay the dangerous character of many of the articles of the materia medica, even in small quantities, renders a competent knowledge of them necessary to him who would dispense them with safety. And this knowledge he cannot acquire by the routine of the shop; by studying the labels of the articles, or looking at them in their bottles or their drawers. He must not only know their appearance and their physical properties, but he must know their effects. How many lives have been lost by the substitution of poisons for medicines!

Art. XII.—*First Principles of Medicine.* By Archibald Billing, M.D., A.M., F.R.S. Fellow of the Royal College of Physicians; Member of the Senate of the University of London, etc., etc. Second American edition, from the revised and improved fifth London edition. Philadelphia: Lea and Blanchard. 1851. 8vo. pp. 246.

The favorable and wide spread reputation of this work, is such as to require for it no commendation at our hands. The practitioner and student can each derive much instruction from a perusal of its pages.

Art. XIII.—*A Practical Treatise on Dental Medicine, being a Compendium of Medical Science, as connected with the study of Dental Surgery.* By Thomas E. Bond, A.M., M.D., Prof. of Special Pathology and Therapeutics, in the Baltimore College of Dental Surgery. Philadelphia: Lindsay and Blakiston. 1851. 8vo. pp. 324.

The Medical Student's Guide in Extracting Teeth: with numerous cases in the Surgical Branch of Dentistry. With illustrations. By S. S. Hornor, Practical Dentist. Philadelphia: Lindsay and Blakiston. 1851. 12mo. pp. 76.

Dr. Bond's treatise fills a hiatus in our medical literature, which has long been felt to exist. It is a fair exposition of a distinct specialty

of practical medicine, and is evidently prepared with particular reference to most, if not all, of the morbid connections existing between the teeth and the rest of the body. The work is intended for the use of the general practitioner, as well as dentist; and will prove useful, owing to the great amount of information it contains, to the practising physician, on many important occasions.

The "Guide" of Mr. Hornor is intended principally for students of medicine. It is written in an easy and familiar style, and we have no doubt but that it will prove an acceptable offering to those for whose use it was prepared.

ART. XIV.—*Ether and Chloroform: their employment in Surgery, Dentistry, Midwifery, Therapeutics, etc.* By J. F. B. FLAGG, M. D., Surgeon Dentist; Member of the Rhode Island Medical Society. Philadelphia: Lindsay and Blakeston. 1850. 12mo. pp. 189.

THE author of this little volume has thrown together a variety of interesting subjects relating to anæsthesia for consideration. On the subject of the history of ether inhalation, he advocates the views which have so often been canvassed in the pages of this journal. We have read many portions of the work with pleasure—others with feelings bordering upon distrust; and our convictions are, that the author is better qualified to advise on subjects pertaining to dentistry, than those relating to obstetrics.

PART THIRD.

FOREIGN MEDICAL RETROSPECT.

ANATOMY AND PHYSIOLOGY.

On the containing-texture of the blood. By WILLIAM ADDISON, M. D., F.R.S., F.L.S.—The relations which have been established between the process of repair and inflammation, and between these and natural growth, have invested embryological researches with a new interest, especially with reference to the development, properties, and transformation of vascular tissue, or, as it may be more suggestively expressed, *the containing-texture of the blood.* In the primitive trace of growth in the embryo, sentient and motor forms (spinal cord, cerebral ganglia, and heart) are the first moulded, and visible, through a lens, in the incubated egg of the common fowl within the space of forty hours. At this early period there is neither a blood-circulation nor blood-vessels. Blood is first seen, not in the embryo-body itself, but in the vascular area, where it primarily appears in irregular, and apparently unconnected red points or blotches, which, when examined with a microscope, are observed to be groups of red cells situated amongst the other cells of this embryonic appendage, and no special limiting or boundary tissue can be distinguished. As growth advances, the amount of blood increases, circulation begins, and the coats of the vessels then become recognizable as a distinct form of tissue interposed between the blood-current and the fixed and more solid portions of the structure. This constitutes the coats of the arteries, veins, and capillaries, as distinguished from the particular substances of the various organs through which blood is distributed, and is, at first, in accordance with the universal law of growth, a corpuscular, and subsequently a fibrous tissue, increasing gradually in thickness and strength, in the arteries and veins, in proportion to the increase and volume of the blood conveyed; but in the capillaries remaining, as at first, exceedingly thin and transparent.

These facts are, we believe, not disputed, and they are here briefly narrated in order to state the case:—That, in original growth, forms of sentient and motor tissue precede the circulation of the blood; that the circulation of blood precedes the formation of the special coats of

the blood-vessels; and that these are at first a corpuscular, and then a fibrous texture.

Experiment 1.—Having opened the shell of an egg after forty or forty-four hours' incubation,—some eggs being earlier than others,—divide the yolk membrane with a pair of scissors all round, just outside the vascular area; then sink the egg slowly in a vessel of water, and the separated portion, which includes the *vascular area, area pellucida,* and the *embryo,* will float at the surface, and may be removed upon a slip of glass for microscopical inspection, either as an opaque, or as a transparent object. Blood is seen in the vascular area, in apparently unconnected, irregular, pale red spots, which are larger and more numerous towards the outer circumference than towards the inner margin, where the area vasculosa bounds the area pellucida. The area pellucida is formed by a thick gelatinous sort of membrane, in the centre of which lies the embryo, with the cerebral ganglion, the two lateral visual ganglia, and the spinal cord, symmetrically moulded. The heart appears as a round transparent vesicle, outside and towards the middle of the body, and has been seen beating regularly, notwithstanding the manipulation to which the embryo and its appendages have been subjected by the removal. No appearance of blood can be detected in any part of the embryo-body: certainly there are no blood-vessels, properly so-called; nor at this time can any capillaries be seen traversing the area pellucida. The whole mass is so extremely soft and tender, that it will not bear the slightest degree of traction.

Experiment 2.—The same proceedings being adopted with an egg of from forty-eight to fifty-two hours' incubation, the trunks of two large blood-vessels are seen emerging, one on each side, from beneath the body of the embryo, some distance below the heart, and one from the heart passes upwards by the head. They traverse the area pellucida, and, reaching the inner margin of the area vasculosa, divide and subdivide; then, the smaller subdivisions returning to the inner margin of the area vasculosa, numerous capillaries are seen passing across the area pellucida towards the body of the embryo. Blood-corpuscles are now seen circling within the heart upon each pulsation; and others are at the same time also seen moving within those portions of the trunks of the vessels which traverse the area pellucida.

With respect to these vessels, a special blood-containing texture can scarcely yet be said to have formed, inasmuch as the blood-currents traversing the area pellucida are bounded only by the material of that membrane, which is quite transparent; and those ramifying in the area vasculosa are bounded by the material of that substance—the altered yolk-cells, and are therefore much more opaque. Moreover, the whole mass is still so soft and pulpy, that it will not bear the most gentle traction without obliteration, falling into a confused mass of cells; though it becomes more coherent after exposure to the air. This is not the character of vascular tissue. The correct ana-

tomical description appears to be this (not only as respects the appendages of the embryo, but also as respects the embryo-body itself):—Whatever substance or texture blood first circulates in, the blood-channels are, for a brief space of time, formed or bounded by that substance; so that, at first, no distinction can be observed between the coats of the blood-vessels and the substance lying in the intervals or spaces between them: whereas afterwards, when the body is more fully grown, and the volume of blood increased, a very important distinction arises between the containing-tissue of the blood, or the coats of the blood-vessels, and the *parenchyma*, or the particular substance of an organ. We cannot select a better illustration than the blood-vessels of the area vasculosa. The yolk of the egg consists of a very thin transparent membrane containing the yolk-cells. The germinal membrane is an altered state of the yolk membrane, and the vessels of the area vasculosa appear projecting into the yolk substance; so that, on their upper or *parietal* aspect, they are smooth and transparent, but, on their lower or *visceral* aspect, they are yellow and opaque. Three parts of their circumference—that is, of their walls—are formed of cohering yolk-cells; the other part by the transparent and smooth yolk membrane.

In the increase and preservation of the human body we recognize three normal phenomena—growth, nutrition, and the process of repair; in its diseases, the two prominent abnormal conditions—inflammation and scrofula. Respecting these we distinguish three things:—1, the blood; 2, the coats of the blood-vessels, or the containing texture of the blood; and 3, the particular substance of the different organs.

Of the blood we have on several previous occasions treated at length, especially with reference to its colorless elements—lymph and lymph-particles, or, as we have elsewhere more frequently termed them, protoplasma and colorless cells.* We now purpose to speak particularly of the containing-tissue of the blood—or, as we may more briefly term it, vascular tissue—with respect to the distinctive properties, reproduction, and transformations it exhibits in phenomena of repair, inflammation, and scrofulous disease.

The containing-texture of the blood.—The coats of the blood-vessels, or vascular tissue, may be described as a sort of framework, in the interstices of which are deposited the various substances by which individual organs are characterized. It is these which impart the sensible qualities by which the organ is distinguished, and it is their constant and intimate admixture with the vascular tissue which prevents the special properties of the latter from being readily appreciable. In repair, inflammation, and scrofulous disease, we meet with new growth and new blood-vessels, the primary elements of which, all observers concur in stating to be forms of lymph and lymph-particles, capable of assuming, by a species of metamorphosis, a

* Medical Gazette, vols. i. and ii., 1840-41; Transactions of the Medical and Surgical Association, vols. xi. and xii.; and Provincial Journal.

fibrous, tendinous, or osseous structure. A bone is composed not simply of bone substance, but also of vascular tissue. Blood-vessels spread everywhere upon the bone-substance, which is full of hollow spaces and passages for their distribution. At the early periods of growth blood and vascular tissue predominate, and a bone is therefore, at that time, soft and yielding; but afterwards the bone-substance preponderates,—yet so that a bone is never without an expanse of vascular tissue permeating its cavities. When a fracture occurs, the process of repair consists in the reproduction of bone-substance: and the agents and materials employed are blood and the vascular tissue of the injured bone.

The phenomena, for our present purpose, may be shortly stated as follows:—Lymph is effused, forming a lymph-bed, which surrounds and envelopes the injured and irritated vessels; new blood-vessels form in the lymph, which is thereby converted into a species of lymph-fabric. This constitutes the primary form of the new vascular tissue,—a kind of granulation-structure, endowed with properties of growth and metamorphosis, and which, first changing into fibrous tissue, is finally converted into bone; the order of the transformation being here, and in all cases, lymph, vascular lymph or granulation-texture, fibrous texture, and bone.* Tendons consist of strong fibrous threads or cords, enveloped, and, as it were, bound together by a vascular tissue. When a tendon has been ruptured, the process of repair appears, in all its primary stages, to be similar to that observed in bone. Effusion of lymph precedes the formation of new vascular tissue: analogously as in the embryo, the cells of the germinal membrane precede the vascular area. But here the transformations are limited to the fibrous type, not proceeding to the ulterior form of bone: and we readily perceive in this example, that whether the primary lymph-form persist, or whether the transformation exceed the natural fibrous form,—in either case the reparation *of the tendon* would be unnatural, and an abnormal or diseased condition would exist. The skin has a much more complex organization than either a bone or tendon. It may be described as a web or framework of vascular tissue, in which are embedded, at variable depths from the surface, the particular substances of its very numerous perspiratory glandulæ and hair follicles. The phenomena of repair in the skin vary according to the nature and severity of the injury inflicted, or according as the before-mentioned organs embedded in it are more or less extensively and completely destroyed. The general results of scalds and burns, which exemplify phenomena of inflammation and repair, are well known. In the former, blood speedily accumulates, reddening the site of the injury, and phenomena of growth or nutrition are exaggerated. The cuticle is raised into a bladder filled with fibrinous serum, and lymph and lymph-particles form a new covering to the excited and distended vessels. These are succeeded by several layers of new cu-

* On Healthy and Diseased Structure, &c., 1849; also the Lectures on Repair, by Mr. Paget.

ticle, beneath which the vessels gradually resume their natural calibre and appearance, and the reparation is complete. In burns the injury is deeper, vascular tissue and its embedded organs being killed or destroyed. Hence a new growth of vascular tissue is required for reparation, the phenomena of which may be briefly summed up as follows:—At a certain depth from the surface vascular tissue regains its tone and properties, whereupon blood flows in increased quantity to the irritated vessels, lymph is effused, and thus a line of demarcation is drawn between the living and the dead textures. New blood-vessels form in the lymph, which thereby becomes new vascular tissue, endowed with properties of secretion and metamorphosis; and when, by the removal of the dead parts, this new vascular tissue comes into view, it is in the form of extremely red points, termed *granulations*, which bleed upon the slightest touch,—a fact indicative of the corpuscular or embryoniform condition of the coats of the new vessels. The granulations metamorphose into fibrous texture termed cicatrix, upon which *the cure*, in as far as natural operations are concerned, is completed. All these cases may be considered as examples typical of inflammation, repair, and cure; and it is to be observed that bone does not exude from bone, tendon from tendon, nor skin from skin; but that in each case a corpuscular growth, termed effusion of lymph, first appears. This, when permeated by blood-currents, becomes new vascular tissue, the metamorphosis of which effects the cure, whether that cure demand an osseous or a fibrous texture. Moreover, it is also to be observed,—at first, during the formation of new vascular tissue or granulations, that the action *is from the blood to the tissues*,—there is deposition, or effusion, growth, secretion, and swelling; but subsequently, during the fibrous and osseous transformations, *the action is from the tissues to the blood:* these latter periods being marked by diminution or swelling, absorption, consolidation, a less amount of blood circulating in the part, and disappearance of a great many of the new vessels.

Respecting the relations subsisting between the lymph of repair and the lymph of the blood,—that is to say, between the colorless granular cells and protoplasma of new vascular tissue, and the colorless granular cells and protoplasma of the blood, the following facts, which have elsewhere been discussed, may here be recapitulated:—Colorless cells are found in abundance in blood taken from vessels administering to repair or inflammation, and a delicate web of fibrous tissue may be seen with a microscope to form in the protoplasma or liquor sanguinis. The blood of the early embryo, when vascular tissue is in active growth, is scarcely more than lymph: the vessels of granulations are formed of lymph, and bleed upon the mere touch; and lymph and lymph particles adhere to the coats of the vessels upon irritating them. Moreover, when blood is withdrawn by venesection from a person laboring under an inflammatory disease, lymph separates quickly in a thick layer at the surface. This metamorphosis into a fibrous texture, the microscopical elements and physical properties of which appear to be of the same nature with those constituting the

containing-tissue of the blood, or the coats of the blood-vessels, in the living body; allowance being made for the difference and disadvantage of the circumstances under which it is formed.

Lymph, lymph particles, fibrous tissue, and serous fluid, are thus demonstrably phases of blood elements, and the same elements are, more or less, components of vascular tissue. From these and other facts, which it is unnecessary here to recapitulate, we have derived the conclusion that *blood forms its own containing texture;* lymph, vascular lymph structures, and granulations, being the primary or proximate,—and fibrous, tendinous, and osseous textures, the more remote phases of the colorless elements of blood. Degraded lymph, and depraved forms of lymph texture, are termed pus, clots of pus, and tubercle, or tubercular infiltration; persistent granulations are termed fungosites, fungous growth, or in popular language, "proud flesh;" and it is these depraved and unnaturally persistent forms, together with the adventitious fibrous, tendinous, and osseous formations, arising from the metamorphosis of lymph and new vascular tissue, which constitute the diseased products of inflammation and scrofula. Ossification appears in the coats of the arteries, and *phlebolites* attached to the interior of the veins; inflamed mucous membranes discharge lymph and pus; and inflamed serous membranes assume the aspect of mucous textures, and then their surfaces become united, sometimes by a soft lymph-structure, and sometimes by a dense fibrous tissue.* It does not seem necessary, in support of the conclusion we have drawn, to refer more largely to the organization of blood, or to the forms which its elements are capable of assuming, especially as numerous interesting facts may be found brought together in the lectures of Dr. G. Burrows, from which we have just quoted. We therefore proceed to the other topic of our inquiry—the limitations of repair; for these appear to indicate the limits of the organization of blood, and explain the common character of the products of inflammation.

It is well known that the extent and facility with which extreme injuries are repaired is directly as the age of the individual; so that

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* Dr. G. Burrows relates an instance in which *phlebolites*, three in number, were examined by him and Mr. Stanley: two were of the size of filberts, and, upon being divided, exhibited several concentric layers of *fibrine;* in the other there was the same kind of structure, with osseous plates in the investing membrane. One of these bodies was attached to the lining membrane of the vein by *fibrous cords;* and a firm *fibrous band* connected this phlebolite with the others. Tiedemann, Otto, Lobstein, Cloquet, and Carswell, all agree that at first phlebolites consist of a small coagulum of blood, in the interior of which *the fibrine* becomes pale and concrete; then assumes an *osseous appearance:* and this goes on, little by little, and layer after layer, towards the circumference. Dr. Reid, of Edinburgh, met with five instances of phlebolites within twelve months: they varied in number from two to a dozen; and in size, from a millet seed to that of a large pea. They were loosely attached to the coat of the vein, and nearly all of them were of a *strong hardness.* Two of these bodies were analyzed, and found to consist of phosphate of lime, carbonate of lime, and animal matter, in proportions similar to those existing in *bone.* (Pathological Observations on the Blood: Medical Gazette, Vol. xviii. 1836.—Edinburgh Medical and Surgical Journal, Vol. xliii. 1835.)

in many of the lower classes of animals a whole limb may be removed at a very early period of life, and be afterwards reproduced,—a phenomenon that does not happen when the full period of growth is more nearly completed. Now, in order to avoid difficult metaphysical questions, we may conveniently express the properties of growth in the embryo, when *all* the organs are evolving and expanding, by the term "*germ power*," and say that, the younger the individual, the greater the proportion of unexpended or unappropriated germ power:* so that, until the maturity of growth, and in a ratio inversely to the age, there will always be the unexpended portion of the germ power co-operating with the properties of blood and vascular tissue in reparative actions; whereas, when the full maturity of growth has been attained, the reparation of an injury falls wholly within what, by analogy of language, we may call the *blood power*:—that is to say, in a very young animal, specific forms not having been completed, there is a greater capacity of reparation than in an older individual, where these have been concluded. In the former example, growth is mingled with repair; in the latter we have repair only.

If the scar or cicatrix of an extensive and deep burn be examined, it will be found that perspiratory pores and hairs are either very deficient or entirely absent in it; from which it would appear that the particular substance of the hair-follicles, and of the glandulæ of the skin, is not reproduced by the process of repair which has healed the wound.† In other cases, too, it appears that muscular fibrillæ, brain substance, liver substance, and the parenchyma of other organs, are not reproducible by the ordinary process of repair—the metamorphosis of lymph. Moreover, inflammation in the brain, in a muscle, in the liver, or in the kidney, does not issue in hypertrophy or increased natural growth of the particular substance of either of these organs, but in forms identical with those which characterize the process of repair—viz., lymph, new vascular tissue, lymph structures, granulations, and pus—and the metamorphosed forms of these—fibrous, tendinous, and osseous forms. What are the inferences to be drawn from these facts? Simply, it appears to us, these: that phenomena of repair by the metamorphosis of lymph, and phenomena of inflammation, are both expressions, as it were, of exaggerated reciprocal action between blood and its containing-texture, and must be investigated apart from the properties of the particular substances prevailing in different organs; that the particular substances of different organs which are beyond the resources of repair, and which do not appear as results of inflammation, are not phases of blood-elements,—they are sustained and nourished by blood, but not

* Vide Mr. Paget's Lectures on the Process of Repair: Medical Gazette, 1849.

† Since this was written, the facts have been substantiated by Mr. Gray, who, in a paper published in the *Lancet*, speaking of the microscopical examination of the cicatrices of burns, states that "no hairs were observed covering the surface of these cicatrices, nor could the existence of sebaceous glands or perspiratory tubes be detected."

derived from it:—whereas those elements and structures which do appear during the process of repair, or in the course of inflammation, are phases of blood-elements. These conclusions appear to derive additional confirmation from further embryological researches: for if the skin or integument of the early human embryo, before it has become vascular, be microscopically examined, cells of a peculiar character are seen grouped together, and disseminated through it in spots. These, from their symmetrical distribution, and the conformable spaces intervening appear to be the foundations, or "*the germs*," of what afterwards become follicles and glandulæ. And as, in the most essential part of the embryo, the governing form (spinal cord and brain) is moulded before the circulation of blood, or the existence of vascular tissue,—so it appears in the skin that the particular substance of its hair-follicles and perspiratory glandulæ is likewise established before the circulation of blood; and it might, *à priori*, have been concluded, that those substances, the germs of which exist prior to, or which are founded independently of blood and vascular tissue, would not be reparable or reproducible by the metamorphosis of the elements of blood, however necessary blood, in its aggregate capacity, may prove to be for their sustenance and growth.

The principal events demanding consideration in repair and inflammation are,—1. The accumulation of lymph or cell-particles, and, 2. The manner in which the coats of the existing blood-vessels are altered, so that blood, flowing in a multitude of new vessels, establishes cell-growth without effusion or loss of its red particles. The latter phenomenon might occur in two supposable ways—either by extension of the coats of the vessels through the newly appearing lymph-bed, or by openings effected in them becoming continuous with the new vessels. What are the facts bearing upon these alternatives?

We have seen school-boys wind a piece of twine tightly around the finger, forcing the blood with great pressure into its extremity,—they have allowed the string to remain on for some time, and, upon its removal, there did not follow any effusion or subcutaneous hæmorrhage. A very vascular nævus may be firmly pressed so as to drive almost all the blood out of its vessels, upon the return of which none of them are found to have been ruptured. The new blood-vessels traversing a lymph or granulation structure, would not for an instant bear the 1000th part of any such treatment without rupture and obliteration. Moreover, we can seldom succeed in injecting the new vessels of very recent lymph, on account of their softness or incoherency. These facts seem incompatible with the supposition that the new vessels which appear in repair or inflammation are formed by an extension of the coats of the pre-existing ones, and, in the course of our researches, we have seen nothing to lead to such a conclusion; on the contrary, the coats of newly formed vessels have always appeared altogether different from those of the older ones. The former are pulpy, soft, inelastic, and composed of colorless cells; the latter tough, elastic, and fibrous. And not only is this the case,

but it has moreover appeared, so far from the new vessels partaking of the nature of the old, *that the old become assimilated to the conditions of the new.* But let us examine, first, respecting the accumulation of the lymph particles.

The prevailing doctrine with respect to effusion of lymph and accumulation of lymph particles appears to be this:—That effusion of lymph takes place by a species of transudation or exosmosis through the coats of the vessels, and that lymph particles arise from "germs" in the fluid, which grow first as "nuclei," and then in "cells," these being developed "as in a blastema." This account explains nothing as regards the principal and second mentioned topic of the investigation, inasmuch as nothing is affirmed respecting any change in the coats of the vessels,—a change that must of necessity take place for blood to flow into new channels. There can be no doubt whatever that the fluid element of blood under various circumstances transudes the coats of the vessels,—*simple effusion,*—the coats of the vessels remaining, their elements continuing, their form unchanged. Nor do we assume to deny *the possibility* of cell particles being developed in the effused fluid "as in a blastema." But we contend that the fact has never been proved, resting only on assumption. On the other hand, the evidence of the senses is not to be repudiated, to the effect that, after irritation, lymph, and lymph particles from the blood, accumulate on the *inside* of the irritated vessels. Having examined the changes produced in the vessels of the *conjunctiva* in purulent ophthalmia, we have found their coats altered, swollen, thickened, and made pulpy,—brought nearly to the condition of embryoniform vessels by the interposition of cell-particles among the natural fibrous elements,—and these have extended from the innermost boundary of the vessels where they touched the stream of blood to their outermost border.* A change of the same kind occurs in the vessels of the gums when they become soft and spongy; and in ulceration where vessels bleed upon the slightest touch, the blood which escapes containing an unusual abundance of colorless cell-particles.

It is not necessary, however, to the prosecution of our present purpose, to determine the question, whether, and to what extent, lymph particles are generated, as in a blastema, in the effused fluid *outside* the vessels; or whether, and to what extent, they accumulate *on their inside* by separation from the blood within. We hold to our conclusions upon this point; and the facts upon which they are based have elsewhere been discussed. It is sufficient that it be granted that cell particles surround and invest the coats of established vessels before new vessels appear.

The inquiry proposed, then, is with respect to the agents which effect the alterations in the older vessels necessary for the establishment of new vascular lymph-growth, and to the opening out of communications between coherent and tough-walled vessels (those of areolar tissue, for example), and the soft, inelastic new ones (those of

* Healthy and Diseased Structure, plate 3, figs. 6 and 7.

repair and inflammation, of lymph fabrics and granulations). The evidence required in the investigation has already, to a great extent, been made known.

In the present state of opinion, however, we begin with two preliminary propositions, which may be safely affirmed—1. That new blood-vessels, traversing freshly-accumulated lymph, can make their appearance only after some change (or opening) has been made in the coats of the pre-established vessels. 2. That wherever lymph-particles are accumulated, there some species of vital action, of growth, nutrition, secretion, or absorption, is going on.

In the first period of repair, the action is from blood to the texture: there is effusion, lymph-particles accumulate, new blood-vessels and embryoniform growths appear. There is *deposition* and swelling. In the second stage of repair, the continued accumulation of lymph-particles ceases, cell-growth is arrested, a great many of the new vessels disappear, fibrous consolidation ensues, and redundant material is removed. There is *absorption*, and swelling subsides. Here are not simply two stages or two periods of one thing, but two distinct things. At first there is clearly an assemblage of matter and forces incompatible with the welfare of established forms, which, considered in themselves, without reference to what may ultimately appear, constitute no reparative process at all, quite the contrary: the action observed during the first four or six days, of a process of repair, *by simple continuation*, becomes morbid. The truly reparative part of the process commences, not whilst lymph-growth is in progress, but when it ceases; when the specific type, the fibrous form, of the containing-texture of the blood appears. Such being the case, the first period of repair giving birth to unnatural growth, is morbid; and therefore, whatever may be concluded from our inquiry, applies not only to the first period of repair, but also to inflammation. Forasmuch as there does not appear any necessity for *assuming* a difference in the forces in operation, or in the agents employed in the one and in the other.

Now, *deposition* and *absorption*, growth and destruction, cannot be supposed in progress together, at the same spot, and at the same time, if we speak of the same matter or the same thing; but with respect to two distinct things there are numerous facts in the economy of the living body—physiological and pathological,—proving that these two actions may be and are concurrent. The alimentary mucous membrane is both an absorbing and an excreting surface—so is the skin. There are times when the elements of food are passing into the circulation from the intestine, concurrently with elements of secretion which are passing out from it. The influence of cantharides, from a blister-plaster, is frequently exercised through the medium of absorption, upon the urinary organs, at the time when there is a copious discharge or effusion from the vessels of the absorbing surface. One species of matter deposited or accumulating, another absorbed or taken away. Many other medicinal substances are well known to be absorbed and carried away in the circulating

fluid under similar conditions. The substance of a necrosed bone is in part absorbed and taken away whilst new bone is forming. In the lung, blood absorbs from the air elements which renovate its properties, and at the same time gives off a vaporous exhalation, incompatible with its arterial character and constitution. All these we conceive to be examples of the concurrence of absorption and deposition.

But the phenomena which come nearest to those, the nature and agents of which we would fain discover, are comprehended under the terms abscess and ulceration. In an abscess there is plainly absorption of the surrounding tissues at the time pus is accumulating; and in ulcers the pre-established textures disappear, whilst discharges are flowing away. In an abscess there is tumor or swelling, not because deposition or the generation of cell-forms is the sole phenomenon, but because the new matter being confined, its accumulation forms the most prominent appearance; in ulceration the new matter is not confined, but being too incoherent to retain a form, it falls away and is discharged, whereupon the loss and disintegration of the original texture becomes the most striking effect. The appearances, therefore, are widely different; but in both the same two physiological actions are concurrent, cell-particles accumulating, and pre-established forms disappearing. When a deep abscess makes its way to the surface and bursts, not only the skin, but multitudes of the blood-vessels of the skin, become gradually thinner and thinner, until at length their continuity is broken without hemorrhage. Such a phenomenon as this cannot be referred to the action of absorbent vessels brought into play by the influence of pressure, for this must be equal on all sides of the abscess, whereas absorption of established textures, and obliteration of blood-vessels, is determined chiefly in one direction, that which is shortest to the nearest surface and safest for the patient. Again, when ulceration is destroying the natural textures, it will often sever blood-vessels of considerable size without any bleeding. Loss of blood from ulceration is the exception, and not the rule. Here, then, we have more than a simple concurrence of deposition with absorption; for a provident lymph-growth closes and heals the ends of the dissevered vessels in the midst of an otherwise destructive process. These phenomena bear the stamp of cell-agency; and, as each cell, though a microscopic, is nevertheless a whole or individual organism, so mixed changes occur—deposition and absorption—within microscopic areas, which, by the congregation of cells, are effected with greater celerity. The inference here seems borne out by the fact, that in chronic scrofulous abscess, where absorption or thinning away of the superjacent integument comes to a stand, the cell-particles it contains are found broken, collapsed, irregular in figure, and evidently effete "unhealthy pus:" whereas in an acute abscess, where the process of absorption of pre-established structure is almost as active as the deposition of the new material, the cell-particles are round, plump, and unruptured, constituting "laudable or healthy pus"—a matter clearly only a short way

removed from lymph, and this more by the greater abundance of cell-particles than by any other feature of difference. Arguing from these facts, the accumulation of cell-forms is no bar to the absorption of pre-established textures. On the contrary, the essential phenomenon of inflammation appears to be the appearance of cell-particles, upon and surrounding the coats of the vessels, which displace the fibrous elements. And, in the absence of any more direct proof upon the subject, we must conclude that, where new blood-vessels are about to appear, the coats of the old ones are previously altered, their fibrous elements absorbed or removed; so that they come to partake, and at length to be constituted of, the elements of the lymph-material in which the new vessels will appear; these replacing elements being the accumulated lymph-particles,—and this whether the accumulation has occurred *outside* the vessels by generation, "as in a blastema," or *inside* by deposition from the blood, or partly by the one process, and partly by the other. By these operations—accumulation of cell-forms and absorption of fibrous-forms—blood-vessels are prepared for the formation of new vascular tissue.

And it is to this change in blood-vessels, when their fibrous coats are infiltrated, and more or less completely supplanted by cell-particles, that we have applied the term *retrograde metamorphosis*, and from its analogy to certain changes and transformations well known to prevail in vegetable structure. The containing-texture of the blood, prior to the appearance of new vascular growth, truly receding from its specific or concluded form or quality to its primitive or embryoniform condition; whereupon new blood-vessels form, subject to the same laws and provisions as prevail in the embryo-mass originally. And the readiness or facility with which this retrogradation occurs, and the speed with which new vessels appear, would seem to constitute no mean part of this evidence of our conclusion, *that blood forms its own containing-texture, blood-vessels being correlatives of the colorless elements of blood.* In the first period of repair we regard this (the inflammatory process) with reference to the second period, when the containing-texture of the blood reassumes its normal form and character, unaided by medical art; but in morbid inflammation we anxiously desire to stop it, from the uncertainty of the extent to which it may go.

Upon this interpretation we have evidence of *two kinds of deposition*, and *two kinds of absorption;* the one characteristic of the first period of repair, the other of the second period of repair, or of the cure of inflammation. In the first, cells accumulate, and the specific form of the containing-texture of the blood disappears: new blood-vessels and new cell-growths arising. In the second, cell-forms, cell-growths, and most of the blood-vessels administering to them, disappear, are absorbed or abolished, the specific form of the containing-texture of the blood at the same time being re-deposited or restored. Thus we have the clearest proof that can be furnished of antagonistic forces. The welfare or permanence of embryoniform cell-growth excludes the normal fibrous structural type of the containing-texture of

the blood; the welfare or establishment of this, on the other hand, excludes the cell-growth: that is to say, the luxuriance of adventitious cell-growth is destructive of natural forms, the reappearance of natural forms destructive of such cell-growth.

The first period of repair (the establishment of cell or embryoniform growth) is necessary to the second (the restoration or reappearance of the fibrous type),—in conformity with the laws of original growth; but can be considered as a healing operation only in the same sense that the embryo-structure, which may be obliterated by a touch, is a chicken or a man. Results, in all these cases, are coming forward, which at length establish a concluded type. In the meantime, we cannot define the perfect by the qualities of the incomplete, and say that the first period of repair is a healing operation.

It appears, then, that at all periods of life blood may be determined in unusual quantity to any part of the body upon irritation applied to its containing-texture. This, if the blood-vessels undergo no essential change, is simple congestion, or, to use the technical phrase, *hyperæmia:* it becomes inflammation when cell-forms accumulate, and the coats of the vessels are losing their concluded form. Under various circumstances effusions also take place: these are simple if the blood-vessels maintain their normal constitution; but inflammatory, if cell-forms are supplanting fibrous elements.*

Inflammation and organization are accepted terms, and they comprehend two distinct classes of facts. We refer organization to an antecedent power or force, and call it "germ-force," "organic life," &c. But, with respect to inflammation, we are not in the same logical position; for we use the word sometimes in the sense of an agent; at others, as merely expressing the phenomena. Thus, we are apt to say that inflammation does this or that, and also that it consists in this or that. Now it is perfectly allowable, in a philosophical discussion of the subject, if we refer organization to an antecedent force, to do the same for that class of phenomena comprehended under the term inflammation.†

But we confine ourselves to a simple statement of the phenomena. The elements of blood, under normal circumstances, are subject to the forces which are operative in organization and natural growth; but in inflammation, or the first period of repair, they emerged from this subserviency, and established embryonic, and therefore retrograde forms of growth. These, in a process of repair, are limited in extent and continuance, conforming in due time to the laws of natural growth: but, in inflammatory and scrofulous disease, they spread and are persistent, prevailing over the forces which govern and sustain the concluded type, or the fibrous form of the containing-texture of the blood.

In inflammation, abortive repair, and scrofulous disease, there is

* Illustrative facts are detailed in our work on Healthy and Diseased Structure, p. 284.

† Upon this point see Whewell, "On the Inductive Sciences," quoted p. 90, *supra*.

ample room for speculation whether the inherent organizing force is too weak or inadequate in some absolute sense, or relatively only to an increased energy on the part of the elements of blood. This is the question substantially at issue when we speak of asthenic inflammation, poverty of blood, and scrofulous diathesis. Chemical investigations here come in aid; but we think it must be allowed that variations in the constituents of blood and the secretions, within the limits of health, are too wide for chemical analysis yet to be our guide in practical medicine.

As regards the term retrograde metamorphosis.—In the "scale of organization," animal bodies which have bones rank higher than those with only fibrous textures, and these higher than the corpuscular or cell-textures, which are esteemed the lowest But the elements of the lowest forms of organization—viz., cells—rank higher in *the scale of vitality* than any element of fibrous, tendinous, or osseous tissue. Every cell is a whole organism; whereas bones, tendons, fibrous textures, and blood-vessels, can be parts only of a whole. In the highest, and in all the intermediate forms of living beings between the lowest and the highest, the particular substance of the secreting organs—the liver, kidneys, &c., the most energetic portions of the brain and of the blood—consist of cell-organisms: and it is evident, from all the facts of the case, that a broad distinction must be preserved between elements of *form* and elements of *vital action*. The former have the lowest—the latter the highest vitality. Bones, fibrous-textures, skin, and vascular-tissue, clearly "degenerate," when they become supplanted by particles of lymph or pus, inasmuch as their form and organization are lost. But, on the other hand, the replacing matter, soft and incoherent though it is, can be said to be "degraded" only in a certain sense; for every corpuscle *which is effective* in the lymph or pus has far more "vital energy" than any portion of the ministerial textures they supplant. Hence the term retrograde metamorphosis refers, not to vital properties, but to condition or form. And be it remembered, that "life is made manifest to us, not by form, but by acts. It cannot, therefore, be considered as an attribute of uniform character or unchanging intensity." And, judging of the intensity of life by the prominence of the effects, there is far more of life in the acute abscess or ulcer than in the natural structures they supplant, but it is not of the kind or co-ordinated to the species required. The gradual accumulation of pus in spite of many opposing forces of a physical kind—its determination, as it were, to push aside and thin away opposing obstacles—are phenomena of life: and we witness here an exhibition of forces analogous to those which enable the tender plumule of the plant to upturn a giant clod of earth. The organized textures reproducible by the process of repair, and which appear in the products of a cured inflammation or scrofulous disease, hold no very high place in the acts of life. Bones are merely crutches for support, and are notoriously modelled and channelled by the softer tissues; tendons are simply cords attaching the motor-tissue to the bones; and vascular-tissue is subordinate in natu-

ral, and even in unnatural growth, to the particular substance—the parenchyma of the organ. For if the brain-substance be malformed or deficient, its vascular-tissue and its bones are generally malformed and deficient likewise; and, in monstrous growth, if brain-substance be unnaturally evolved, exceeding the specific bulk, its vascular-tissue is unnaturally expanded also; and, moreover, the bones of the skull are abnormally expanded, and their number, too, is much increased.

Thus we return to the high significance of embryological researches, where sentient and motor forms are the first moulded; and being so, blood appears. After these follow the containing-texture of the blood; and, lastly, tendinous and osseous structures;—all in subservience to the leading forms, and these last again subservient to the "power" inherent in the "germ." If this be crippled in the evolution of sentient-matter, vascular-tissue, tendons, and bones, conform to the deficiency. On the other hand, if the nervous centre luxuriate in growth, vascular-tissue and bone luxuriate with it. If the "germ-power" be so much blighted that the leading forms (spinal cord and cerebral ganglia) be not moulded, blood does not appear. Blood not appearing, there can be no vascular-tissue; and without this there can be neither tendons nor bone.

It may be objected to the conclusion that bone is a metamorphosed form of vascular-tissue, that if either a wing or a leg of the embryo-chick, when first budding forth on the fifth day, or either of the extremities of the human embryo, when these are not much larger than a mustard-seed, be gently compressed between two slips of glass, and examined with a microscope, all the bones will be seen symmetrically arranged and moulded to their proper shape before any blood or blood-vessels can be seen near them: and, in our figs. i. and ii., p. 194, the dorsal plates are shown as existing at the fortieth and fiftieth hour of incubation. These facts, which might be supposed to militate against, do in truth serve to establish our conclusions. For the substance thus shaped and moulded is a *germ-mass*, entirely composed of soft corpuscles or cells. It is not bone: there is nothing hard—nothing resembling bone. Bone-substance does not appear until some time after this primary form has been permeated in all directions by blood and vascular-tissue. So that here, though the form and outline of the future member is cast before blood circulates through it, still *ossification* does not commence except through the agency of the containing-texture of the blood.

In what texture is inflammation seated? If we examine any soft part of the body, we find it composed of parenchymatous substances (nerves, muscles, and secreting substances), intermixed with blood-vessels and sundry forms of fibrous texture.

§ 1. *Of the parenchyma of different organs.*—The particular substances of different organs, as a consequence of the order of development in the embryo, become placed outside the blood-vessels, disposed in groups or masses in the interstices between them. These divide themselves, by their physiological offices or functions, into

three well-marked classes—*sentient*, *motor*, and *secreting;* which again, upon physiological grounds, are variously characterized and subdivided. Thus, of the *secreting organs*, the parenchymata and secretions are extremely different; of the *muscles*, some are voluntary, others involuntary; and, in the *nervous system*, the physiology of sentient elements differs in each of the organs of the senses. Those of the ear have a very different function from those of the eye, and so on. But let us review generally the plan of the conformation of the body, with reference to the parenchymata of different organs, in as far as they have relation to inflammation. That which appears simple to the unaided vision becomes exceedingly complex examined microscopically.

The skin and mucous membranes are *secreting organs*, so much unfolded and spread out, that the parenchymatous substances upon which the secreting actions depend become disposed in distinct spots or groups, each with its separate outlet or duct, the intervals between being filled in with a corresponding development of fibrous tissue. On the contrary, in the internal secreting organs, the groups or lobules of the parenchyma are so closely folded together, that not only is the bulk of the organ very greatly increased, but the ducts unite many times; forming a series of coalescing larger and larger tubes, which demand for their confirmation and support a constantly-increasing thickness of dense fibrous texture, the submucous fibrous basis. But then, that no space may be sacrificed, all the lax areolar forms of fibrous tissue are reduced to the smallest possible compass that is consistent with the magnitude and requirements of the secreting mass.

Passing from the secreting parenchymata to the organs of purely animal life, we observe correspondent groupings and relations. *Muscular fibrillæ* (sarcous elements) are associated in great masses in the voluntary muscles, having between them the smallest possible amount of fibrous inter-divisions. Elsewhere the fibrillæ are spread out in thinner sheets, with a larger proportion of fibrous areolar tissue intervening; and in other places unstriped fibrillæ are distributed in almost single threads.

Sentient elements are congregated in prominent and distinct spots, termed *papillæ*, in the skin. They are exposed in thin and delicate sheets upon the organs of hearing, sight, and smell; but in nerves, spinal cord, and brain, they are folded and disposed within the smallest space. It is to be observed that, for the most part, the elements of the special parenchymata retain through life the cell-form. The prominent exceptions are *medullary tubules* belonging to the nervous, and *sarcous elements* belonging to the muscular system. These in the embryo, and for some period of fœtal life, are represented by cell or germ-forms; but during growth there is a metamorphosis to the forms by which they are afterwards recognized. Nerves and muscles, therefore, are not primary but secondary forms; and these appear to reunite after division, provided their dissevered ends be brought sufficiently near together. But this reunion, or rather incorporation, of medullary tubules and muscular fibrillæ, after division by cutting,

does not appear to be a phenomenon of repair by the metamorphosis of lymph, but to arise from inherent properties in the substances themselves—a sort of out-growth of nerve and muscle substance; for, first, it does not seem to take place, except during youth, when, as we have remarked, growth is mingled with repair; and secondly, when it does occur, it is only some time after the process of repair as it relates to fibrous texture, on the formation of the cicatrix, has been concluded.

Now the elements of the particular substances of different organs cannot inflame, except in the meaning of secession, absorption, or disappearance, before new and interpolated forms, or of being intruded upon and deranged by the effects of inflammation. Correctly speaking, upon the testimony of microscopical analysis, inflammation is not seated in brain-substance, liver-substance, or muscle-substance; though we speak of such in consequence of the microscopic character of their relations to blood-vessels. No lengthened argument is needed by those accustomed to microscopical observation, to prove this with respect to the cell-particles and medullary tubules peculiar to the nervous system—the fibrillæ, or sarcous elements of muscles, or the secreting cell-particles of the liver, kidney, and other secreting organs. But if the elements of the parenchymatous substances of different organs do not inflame, inflammation must necessarily be seated in the fibrous textures.

§ 2. *Of the fibrous membranes, fibrous textures, and areolar tissue, skin, and mucous membrane.*—What are the relations of the fibrous membranes?—are they correlatives of blood? Large venous sinuses from the brain traverse the *dura mater*, which are described by anatomists as situated between its laminæ, because of the perfect homogeneity of the elements of the coats of the sinuses and the rest of the membrane. The strength and thickness of the dura mater have an evident relation to the magnitude of the blood-streams it conveys. The blood-vessels of the *pia mater* are much more numerous and much smaller, and the membrane is in a corresponding degree thinner and more delicate. There is here the same species of fibrous elements in the coats of the vessels, and in the non-vascular parts stretching in the intervals between them. The *pericardium* is a thick fibrous membrane resembling the dura mater, and, like it, coincides in strength and thickness with the magnitude of the great vessels from which it is, as it were, reflected to cover and protect the central moving point of the circulation. The *areolar tissue* is one of the most extensively diffused of all the elements of organization. So comprehensive is the association of this tissue with the blood-vessels, that it would be difficult to point out a single instance in which they are not enveloped by it. Even the capillaries of the coats of the larger vessels are invested by a sheathing of this tissue. The *cutis*, or fibrous basis of the skin, cannot be distinguished from areolar tissue, except by the greater condensation and more intricate inweavement of the fibrous elements. "However great the difference may seem to be between the dense and closely-woven texture of the cutis

and the lax areolar tissue, to which it owes its mobility on subjacent organs, they blend insensibly together. Their ultimate texture is essentially the same."* The same may be said of the fibrous basis, or the submucous fibrous tissue of the mucous membranes, excreting ducts, and tubes. This blending insensibly together of the different modifications of fibrous tissue furnishes the grounds of an affirmative answer to the question proposed. And such an answer harmonizes with the pathological facts—viz., the completeness with which all the phases of inflammation are exhibited in fibrous membranes; increased vascularity, lymph-growth, granulation, and pus, as belonging to the primary stage or proximate form; and adventitious fibrous texture of every degree of laxity and condensation, and ossification, as the secondary or more remote. But an affirmative answer embraces a very extensive class of textures. What, therefore, is the history of the growth of fibrous membranes? During growth in the embryo, all the fibrous textures appear from our researches to follow, *pari passu*, the phases of the coats of the blood-vessels. When the latter are corpuscular, the former are corpuscular also; the fibrous type is coetaneous in each. In their growing state these textures are not only greatly more cellular, but also greatly more vascular than when their fibrous type is concluded,—a fact which corresponds in a very striking manner with the cell-structure and high vascularity of the "granulations," as compared with the low vascularity and fibrous structure of the "cicatrix." By these facts we trace relations not only between the cell and fibrous types of the blood-vessels and the growth of fibrous membranes, but also between these and the granulations and cicatrix of a burn—*i. e.*, between growth and the first and second periods of repair—the rise and cure of inflammation; so that, whether it be that condensed form of fibrous tissue which, limiting and transmitting the streams of blood, we call blood-vessels,—or that closely woven form which backs and supports the glandulæ and papillæ of the skin and mucous membranes,—or that expanded membranous form which incloses the various parenchymata,—or, lastly, the lax and areolar form which admits of motion between contiguous parts, all are subject to the same pathological law; that is to say, the fibrous textures are the theatre of the morphological properties of blood (of repair, inflammation, and scrofulous disease), because they are correlatives of blood.

Thus we arrive at the full meaning of the terms we have employed to head the present inquiry,—*the containing-texture of the blood*,—a meaning not limited to blood-vessels, but comprehending with them all the variously modified forms of simple fibrous tissue. And we have been encouraged and led on to this comprehensive meaning step by step in our researches, considering that inasmuch as the very small vascularity of a tough fibrous cicatrix does not affect its relations to the previous highly vascular cell-granulations,

* Physiological Anatomy, by Dr. Todd, F. R. S., and Mr. Bowman, F. R. S.

and through these to the elements of blood, so it appears the small vascularity of a tough and condensed, or lax and areolar form of any original fibrous membrane does not deprive it of its physiological correlation and *consanguinity*.

§ 3. *Of inflammation, the first period of repair, abcess, ulceration, and organic disease.*—Inflammation to the ordinary observer appears as a phenomenon of redness, heat, swelling, and pain. To us it appears as a phenomenon of change or *morphology*, affecting, and limited in its definite character to textures, correlatives of blood in which *cells and cell-growth supplant fibrous forms*. This definition of inflammation is founded upon the facts which have been discussed, and is corroborated by the distinctions recognized by all of us between congestion, hyperæmia, blushing, and inflammation. In the former the coats of the blood-vessels do not experience any morphological change or essential alteration of type. In the latter they do; the change from fibres to cells adapting them to the supply of new vessels, and to the support of new growths.

Whatever be the view entertained by different pathologists respecting the nature of inflammation, whatever the definition they may deem most appropriate, and whether they regard it in its benign and physiological aspect as the first period *of a process of repair which is to follow*, or in its morbid aspect as a destructive process, there can be no possible doubt about the appearance or accumulation of cell-forms—termed *lymph-particles*—upon and around the blood-vessels; nor, looking to the general history and physiology of cells in every department of the animal and vegetable kingdoms, do we think there can be any reasonable question raised as to the lymph-particles being, in the examples we are reviewing, the agents which determine the observed changes, which disintegrate and supplant, or *absorb* the fibrous texture in abscess and ulceration. Lymph-particles cannot inflame. These as we have before said, are microscopic whole organisms, and as such liable themselves to *inherent deteriorating changes*, which modify their character as physiological and pathological agents, diminish their co-ordinated vital properties, and cause them to appear under sundry microscopic aspects, as exudation-cells, pus-particles, &c.

Thus it seems to be the deteriorating changes in the constitution of the cell-particles, in the example of chronic scrofulous abscess already referred to, that retard and render chronic, scrofulous, and incomplete, an action which, had the cell-particles been plump, vigorous, and healthy, might have proved simple inflammation followed by the cure. Weakness, incapacity, and death, in the agents of an operation, stop the work, and lymph particles, which are irregular and effete, render inflammation chronic, and cure tardy. If the microscope brings us physiologically to a point where the vital energies of cell-particles are the necessary antecedents of fibrous structures, so it brings us pathologically to the same point in interpreting the phases of repair and inflammation. *And, as in growth in the embryo, every fibre taking the place of a cell-particle is an element in natural*

development contributing to the concluded or adult form of fibrous tissue; so conversely, when fibrous textures have been established, every cell supplanting a fibre is an element of retrograde metamorphosis; and, according to the conditions of the supplanting cell, does this assume the physiological, or degenerate to some pathological aspect.

It is the pre-established, the seceding fibrous coats of the blood-vessels, to which we refer as the seat or subject of inflammation: and as regards them in the first instance, the action is the same whether it leads to repair or ulceration, the difference arising in the one case by normal fibrous forms asserting their supremacy; in the other, by the primary cell-action pursuing an unchecked course. The *reasons* of the difference is the field of speculation. Our conclusions are, that textures correlative of blood are the seat, and lymph-particles the material agents; repair, inflammation, and scrofulous disease, the phenomena.

But though the elements of the parenchymatous substances peculiar to different organs do not inflame, they are subject to inherent deteriorating changes. This has been demonstrated with respect to the secreting cell-particles of the liver, and the elements of the vitreous body of the eye, by the observations of Mr. Bowman; and by the researches of others who have employed the microscope with respect to the elements of brain-substance, muscular fibrillæ, and the secreting cell-particles of the kidneys, &c. &c.

And thus we arrive at the anatomical basis of the distinctions recognized in practical medicine and pathology between *organic* or *specific* and *inflammatory* diseases: that is to say, between degeneration or disease of the special elements of an organ, and the changes, interpolations, and intrusions, incidental to the properties of blood and fibrous tissue—phenomena of inflammation.

It is no part of our present purpose to touch upon the subject of organic or specific diseases further than may be necessary to render intelligible the facts connected with inflammation.

In every organ within microscopic areas, there are elements of the common and of the specific.—The elements of the common are blood, blood-vessels, and fibrous tissue; the elements of the specific is the matter of the specific function: therefore there are in every organ of the body, and within microscopic areas, elements of two kinds of hypertrophy, atrophy, degeneration, and disease—inflammatory and specific. But such is the minute or microscopic scale upon which the different elements of the living structure commingle and incorporate, that before disease can become an object of practical interest disturbed expressions from the *superadded* become mingled with and complicate the *fundamental:* and thus the function of the parenchyma gives complexion to the symptoms of inflammation. For the illustration of these doctrines we go not to the transcendental, but to the practical.

There are assemblages of symptoms in the living, and results to

be seen without microscopic aid, in the dead body, which conclusively establish the fact of their being distinguishable diseases, in which the deviation from the standard of health and healthy structure begins in the elements, and progresses from group to group of the parenchyma, the general fibrous basis and the blood-vessels remaining comparatively but little affected, or clearly suffering in a secondary manner; and conversely, that there are other diseases,—scrofulous diseases, for example, in which the persistence of granulations, ulceration, and pus discharges, proclaim a persistent retrograde condition of blood-vessels; fibrous textures overrun with cell-growth constituting the definitive feature of the disorder. In the liver, kidney, heart, and brain, where specific elements are very densely congregated, and fibrous textures reduced to their minimum amount, specific diseases eliminate themselves in a recognized manner from phenomena of inflammation; and in the skin and mucous membranes, where groups of particular substances are comparatively widely separated, and fibrous texture largely developed, the distinctions we are enforcing are not the less well marked and distinguished.

§ 4. *In the skin.*—Small-pox, herpes, lepra, &c. are diseases quite distinct from erythema and erysipelas. The morbid action in the former is circumscribed, limited within a sphere around the glandulæ and follicles, or groups of them; in the latter it is diffused, spreading widely in the common fibrous basis. Evidence to the same effect—and moreover, we would impress upon the reader, establishing the specific action of poisonous substances—is furnished upon the application of irritants to the skin. Blisters excite inflammation in the fibrous basis. Croton oil produces a more pimply redness—an eruption: and antimonial ointment causes pustules to arise resembling those of small-pox. In all these instances there is inflammation, a deteriorating change in the coats of the blood-vessels. But in the one class of diseases this is circumscribed about the groups of the particular substances; in the other it spreads widely in the fibrous basis or areolar tissue, irrespective of glandulæ and follicles. In the former examples inflammation wears the aspect of the *superadded;* in the latter, of the *fundamental.*

§ 5. *In the mucous membranes.*—The mucous membranes, composed of a common fibrous basis, and groups of villi, papillæ, glandulæ, and follicles, are analogous to the skin, and are therefore obnoxious, *in virtue of the common* (blood-vessels and fibrous textures), to congestion, effusion, hyperæmia, anæmia, and all the phases of inflammatory action; and *in virtue of the special,* to specific hypertrophy, wasting, degeneracy, and disease, to pimply eruptions, acuminated pustules, and specific ulcerations. Amongst the diseases of the mucous membranes, Billard distinguishes in infancy the *follicular* from the *erythematic:* and Rokitansky distinguishes in the adult those of the mucous surface from those of the sub-mucous fibrous basis, gelatinous softening of the stomach, and what he denominates *the typhous process,* from inflammation.

"If we consider," says the latter distinguished pathologist, "that

gelatinous softening in none of its stages presents, either at the point of softening or in its vicinity, either hyperæmia, injection, or reddening, and that we are still less able to demonstrate upon the inner surface of the stomach, or in the tissue of its coats, the products of inflammation, we are constrained to infer the non-inflammatory nature of the affection." "This conclusion," he says, "gives a key to the various kinds of softening that occur at advanced periods of life under similar circumstances,—viz. in cerebral affections."*

To follow out physiologically and pathologically the analysis here indicated with respect to the common and the special in all the organs of the body, microscopic and large, would be, indeed, to enter upon a wide field of anatomical research; enough has been said to indicate the principle, and to eliminate the fibrous textures as the seat of inflammation, repair, and scrofulous disease.

§. 6. *Of repair, and the imperfections or limitations of cure.*—The characteristic pittings of small-pox, and the analogous marks which may be found remaining after a severe application of antimonial ointment to the skin, not only point out upon what texture the morbid action has been concentrated, but they indicate—as do the scars and seams of a burn—that the parenchyma of the glandulæ is not restored or reconstructed by the process of repair, which fills the void, not by restoring the destroyed or lost form, but with simple fibrous tissue. Pathological anatomy has long demonstrated analogous facts in the mucous membranes: and it appears from our observations in these and other examples of repair or cure, where an original or germ-form has been destroyed, that, with the original form and substance, *the principle* governing the natural distribution of the blood-vessels has also departed; for the arrangement or disposition of these in a scar or a cicatrix, in granulations and lymph, appears to us never to be the same as it was in the unimpaired original growth. Such being the facts, we have, in these instances at least, no evidence of a repetition or revival of the "germ force." On the contrary, we see only effects arising from those qualities of blood which, wherever blood extends, originate a limiting or bounding texture, a correlative of blood, the first phase of which is *corpuscular*, and the concluded form *fibrous*. These imperfections or limitations of cure in the skin may be of little consequence to the welfare of the person; but in mucous membranes and internal organs they become of much more importance: and allied to these in their consequences upon the general or constitutional health are the unnatural fibrous adhesions which very frequently attend the cure of severe inflammation on the free surfaces of fibrous membranes. But we have elsewhere spoken at length upon this part of our subject,† and are therefore content with the following summary:—

The first phenomenon of repair is inflammation, cells and cell-growth interpolating fibrous texture. The second phenomenon of re-

* Pathological Anatomy: Sydenham Society's edition, vol. ii. p. 36.
† Healthy and Diseased Structure, part ii. ch. 2.

pair is the cure of inflammation; natural fibrous forms abolish and exclude the cell-growth period. But there is often a pause between those two periods. Inflammation subsides, but cure does not advance: unnatural cell-growths maintain their footing, but they do not spread. *This is scrofulous disease,*—a persistent form of retrogade metamorphosis.

Finally, the human body, regarded *analytically*, is composed of three great systems of organs—sentient, motor, and secreting—nourished by the circulation of the blood, and sustained by the coherency of textures, correlatives of blood. In this point of view we have sought to determine the seat of inflammation, and to extricate its definitive phenomena from their complications with the elements and physiology of the parenchymatous substances. Desirable as this is on many grounds, particularly as interpreting pathological appearances, we must remember that analytical views are unsatisfactory in the practical treatment of disease; because, in the first place, such is the minuteness of the scale upon which different physiological substances commingle and are co-ordinated, that there are everywhere in the living structure, *and within microscopic areas*, elements of the common and of the specific: so that if disease fundamentally begin in the one, it affects the other before it can become an object of practical interest or regard: and in the second place, *synthetically* viewed, all the various elements of the living body are so mutually incorporated and interdependent, that the whole of them form but one person. Look at the relations between *sentient* and *motor* elements. Muscles act instantaneously upon the dictates of the will; but disturb sentient matter, and muscles are divorced from the dominion of the will: they remain quiescent, and waste away. Are not muscles, then, exquisitely sensitive? *Sentient* and *motor* elements are both incorporated with the simple fibres of the *fibrous tissues*, and immediately feel the influence of the first inroads of inflammation. In the deep interior of the brain *sentient elements* are brought into such close and mysterious relations with the *elements of blood*, that the ordinary form and character of the limiting tissue of the blood is dispensed with, a kind of embryonic type of circulation here prevailing. Blood and medullary matter seen in this instance to have nothing interposed between them. In the *secreting organs, and within microscopic areas*, multitudes of the *secreting cell-particles* are attached to the *containing-texture of the blood:* and in the liver the same continuous relations are thought by the best anatomists to prevail between the *secreting elements* and the *venous blood*, as appear to exist in the brain between *sentient elements* and *arterial blood*. It is these synthetical relations which prove to us how dependent every part of the body is upon the circulation of blood, and deprive analytical investigations of the extensive influence which otherwise they must have had upon the art of therapeutics. In the embryo, *germ-masses* or groups of sentient, motor, and secreting elements are founded prior to the flowing of the blood current, but the growth of blood-vessels of fibrous textures and bones, upon which the relations of forms and functions depend, is

posterior to the circulation; and the healthy constitution of these textures hinges upon a normal metamorphosis of the elements of blood. Such being the facts, what, then, replenishes and maintains the circulating fluid?

In answering this question, we enter upon another and a widely different sphere.

Food, drink, and air, incorporate with blood. Here we pass from the department of the living body to the world of external Nature; and it is to be observed, that the elements of the one cannot be said to be *more necessary to the phenomena* of life and health than are those of the other; for the body dies as soon, deprived of air as it does deprived of blood.—*Med. Gaz.*

PATHOLOGY AND PRACTICAL MEDICINE.

Neuroma of the Auditory Nerve.—Mr. Toynbee in November last, before the London Pathological Society, exhibited a specimen of neuroma of the auditory nerve which was removed from a man aged 60. The only symptom indicative of its presence during life was a diminution of the power of hearing. The disease consists of a white tumor, about the size of a small bean, which occupies the internal auditory meatus, and projects about a line beyond its posterior border. The shape of the tumor is conical, the small extremity being situated at the anterior part of the meatus: its texture is firm posteriorly; and, upon being cut into, presents but little cellular tissue: anteriorly it is softer. The tumor is attached to a portion of the auditory nerve supplying the vestibule, the fibres of which enter its middle part; and they emerge at its anterior extremity, entering the vestibule with filaments from the healthy portion of the nerve. The nerve supplying the cochlea is unaffected by the tumor; the portio dura lies in its upper surface. Upon examination with the microscope, the tumor, at its anterior part, was found to be composed of distinct nerve tubes, which assumed the varicose form upon the slightest pressure, and of others about the same size, but more opaque, presenting in their walls distinct nucleated cells, and having the appearance of nerve tubes in the process of development, as delineated by Schwann: these two kinds of nerve-tubes were about equally distributed through the anterior part of the tumor, and between them rounded cells were interspersed. The posterior part of the tumor was observed to consist of fibres running parallel to each other; they are not so large as the tubes in the anterior part: some of them present distinct nucleated cells.—*Med. Gaz.*

Induration of the Sterno-cleido-mastoideus muscle in Young Infants.—By T. B. Curling, Esq. Whilst I had charge of the outpatients at the London Hospital, infants a few months old were occasionally brought to me on account of stiffness of the neck, which I found to proceed from a remarkable induration of the sterno-cleido-mastoideus muscle on one side. The muscle was in all cases well-

defined, and felt rigid, and almost of cartilaginous hardness. I have preserved notes of four cases, in all of which the muscle affected was the left. The affection did not appear connected with any derangement in health, or to produce any inconvenience beyond the stiffness alluded to; but this, coupled with the hardness, was sufficient to excite some alarm in the minds of the parents. I do not recollect having met with any instance of it later than ten weeks after birth, and generally the infant was about three or four weeks old. In the last case that I saw, which was sent to me by my colleague Dr. Frampton, the child was aged seven weeks. The induration invariably subsided very gradually. The treatment resorted to was the application of a mild liniment and a grain or two of the hydrargyrum c. creta.

I have had no opportunity of ascertaining the structural character of this curious muscular affection, nor of determining its cause; but, from the early age at which it occurs, and ultimate subsidence without impairment of the part, I suspect that the induration was consequent upon some injury to the muscle at birth, producing a chronic deposition of lymph between the muscular fibres. I have inquired of several experienced accoucheurs, but I found they were unacquainted with the affection, and unable to account for it.—*Med. Gaz.*

Treatment of Acute Rheumatism by Local Anæsthetics. By M. Aran, (*Academy of Medicine, Paris, Dec.* 10, 1850.)—Dr. Aran related the results of his researches on the application of anæsthetics to the joints, in acute rheumatism. A moist compress on which the agent is sprinkled is applied and renewed once in twenty-four hours, being inclosed by impervious bandages so as to prevent its evaporation. It is applied to each joint in succession as it becomes inflamed. Having experimented with various agents, Dr. Aran decides in favor of the *Dutch Liquid.* The relief afforded, as regards the local pain, is very decided, and lasts from one to six or eight hours according to the severity of the attack. The movement of the limbs is restored, and the swelling subsides, and the disease gradually declines in from six to eighteen days according to the duration and acuteness of the disease. The complications of rheumatism may be treated on general principles at the same time.

At the meeting of the Academy of Nov. 19th, Dr. Aran addressed a note on the value of various anæsthetic agents in reference to local medication. The following are the chief of Dr. Aran's conclusions:—

1. All those volatile agents that are recognized as general anæsthetics possess the same property when applied locally.

2. This local power is not in direct relation to their general anæsthetic power, but is in an inverse ratio to their volatility. Thus the Dutch liquid, or chloride of olefiant gas, exceeds all others; chloroform excels ether, &c. &c.

3. Some of these agents do not produce any irritation of the skin—*e. g.* aldehyde, and benzine,—while others, as chloroform and Dutch liquid, cause a sense of burning, and, if applied long enough, produce vesication.

4. Therefore the Dutch liquid is the best local anæsthetic agent: its action endures a longer time, it produces only slight stimulation of the surface, and has a less disagreeable odor than the ethers, &c.

5. It is not necessary to employ large quantities for obtaining these local effects: from fifteen to thirty drops of the chloride of olefiant gas, covered with a moist compress, will suffice to allay pain in most cases.—*Med. Gaz.*

Contagion and Treatment of Scabies.—By M. Bourguignon, (*Academy of Medicine, Paris, Nov.*, 1850.) M. Bourguignon read an analysis of a paper which he submitted as a supplement to his Essay on Scabies, to which the Montyon prize had been awarded in 1846. From his later researches M. Bourguignon had arrived at the following results:—

A. With regard to scabies transmitted from the horse to man—

1. That an undoubted and indisputable instance of this form of communication of scabies has not yet been produced.

2. That the patients admitted into the Hospital St. Louis as cases of this manner of communication have always presented the acarus and furrow peculiar to man.

3. That the acarus from the horse, placed upon the author's arm, and on that of another healthy individual, did not pierce the integument nor give rise to any appearance of the disease: in fact, that its transmission from the horse is impossible. But it does not follow that other skin affections are not so transmitted.

B. On the contagion of the scabies from dog to man.

Scabies has not yet been shown to be thus transmissible, although the skin diseases of this and other animals may be communicated to man.

C. On the transmission of scabies from man to animals.

The acari of scabies from man having been placed in considerable numbers on the skin of the cat, rabbit, sparrow, and rat, were observed to pierce the integument, but did not give rise to any trace of the disease. Whence the author concludes that the contagion of scabies to animals from man is impossible; that certain cutaneous affections are produced on the skin of man by contact with the same class of diseases of animals; and that their treatment does not involve the death of insects (insecticide), but should be conducted on general principles.

In the second part of this paper the author enumerated a series of experiments on the various remedies for scabies. The three principal remedies, *pommade de poudre et au soufre, huile de cade, et pommade sulfuro-alcalin d'Helmerick*, are superior to all others, and will cure the disease in forty-eight hours, if applied once thoroughly over the whole body every twelve hours, for a quarter of an hour, followed, twenty-four hours after the last application, by a soap-bath. The patient should cover his hands well with the application before rubbing it on the rest of the body.—*Ibid.*

Syphilitic Inoculation. (*Academy of Medicine, Paris, Nov.* 1850.)—M. Auzias-Turenne transmitted a note containing his results on this subject. M. Turenne declares the identity of the disease in man and animals. M. Robert de Weltz had produced chancres on his arm by inoculation of the matter of chancres previously produced by inoculation in the monkey and the cat. M. Turenne states that, in the successive inoculation of animals with syphilitic poison, each consecutive sore is less inflamed and less characteristic, until at last, after about the fourth inoculation, no effect follows the insertion of the virus. To the state thus induced M. Turenne gives the name of *syphilitization*, from its analogy with vaccination,—as, during its existence, the constitution is protected from syphilitic contagion.—*Med. Gaz.*

On Fungous Tumour of the Rectum in Children, attended with bloody discharges. By M. Leclayse.—M. Martin has already directed attention to the affection as it occurs in the adult, producing discharges which are mistaken for those from hemorrhoids. The first case occurred in a child, æt. 5, about whom the author was consulted, in consequence of hemorrhages which occurred during a prolapsus ani, and which arose from an excrescence that he at first mistook for hemorrhoids. Examining it more closely, he found it was a spongy vegetation, not unlike a portion of the placenta, which protruded from beyond the sphincter when the child went to stool, and was quite insensible to the touch. As the hemorrhage had been considerable, the fungus was touched with the nitrate of silver, whenever it protruded; and owing to its softness, four or five applications, at intervals of several hours, sufficed for its destruction. In a second case, a girl, æt. 8, had become much reduced by the quantity of blood she had lost during several weeks; and a fungous tumor, about the size of an almond, was easily removed in the same way. A third case occurred in an infant six months old, in whom efforts at stool protruded a tumor the size of a pea, which bled. The author believing it to be the germ of the fungous tumor, also treated it with caustic.

M. Leclayse believes that this affection is often mistaken for hemorrhoids; and especially when the bleedings are said to be due to internal piles. The caustic could not be applied very high up, but as the bleeding has only occurred on the protrusion of the tumor, this has been easily reached, the application being successful even when the base of the tumor could not be attained.—*Rev. Medico-Chirurgicale*, tom. vii., p. 346; and *Brit. and For. Med. Chir. Rev.*, October, 1850.

Inflammatory affections of the Tongue. By Dr. Fleming.—Dr. Fleming says, that sudden and alarming swelling sometimes takes place in the tongue, which seems to be merely an unaccountable and active hyperæmia, readily yielding before inflammation has had time to be lighted up, by incision, by leeching copiously, both locally and under the chin. Another affection is an inflammation, circum-

scribed or diffused, originating in the loose cellular tissue between the genio-hyo-glossi muscles, the treatment for which is antiphlogistic, but if it does not readily yield, Dr. Fleming recommends a free incision to be made under the chin in the median line, through the integuments and fascia, and through the raphe of those muscles, delaying the advancement of the suppurating process. Dr. Fleming says, the best treatment for the abraded surface of the tongue, sometimes met with, and for a peculiar kind of ulcer, which is accompanied by a small tumor about the size of a pea, and which he states may occur without the slightest suspicion of a syphilitic taint, is the iodide of iron, with hemlock, and the local application of the nitrate of copper. Dr. Fleming thinks it a tuberculous disease, and says it is by no means uncommonly met with. The nitrate of copper, he says is almost invaluable also as an application to the small excoriated ulcers, of a semi-phagedenic character, occurring in the genitals of both male and female. It is very deliquescent, and can be applied only in its liquid state. The surface of the ulcer should be well dried previously, and afterwards covered with oil.—*Braithwaite's Retros. from Dublin Quarterly Journal, August,* 1850.

Treatment of Scrofula. By Dr. Negrier.—Preparations of walnut-tree leaves have lately been introduced as a remedy for strumous disorders. The cases which have been treated with them have afforded some astonishing results. Out of fifty-six patients so treated, thirty-one were cured, and eighteen underwent great amendment; there being only four who obtained no advantage from the use of the medicine. Of the infusion sweetened with sugar, two or three cupfuls were prescribed daily. This is made by placing a good pinch of the leaves into 250 grammes of boiling water. The decoction for baths, lotions, or as injections in fistulous openings, is made by boiling a small handful of leaves for ten or fifteen minutes in a kilogramme of water. The extract is made by the method of displacement. The syrup is made by mingling forty centigrammes of the extract with thirty grammes of simple syrup. To young children, two or three teaspoonfuls of this syrup may be given in the course of twenty-four hours. The ordinary dose for adults is from thirty-two to forty grammes, and more than sixty-four grammes have been given.—*Braithwaite's Retrospect.*

On retarding the advancement of Cancer. By Dr. Bennett.—Dr. Bennett has remarked that "in a cancerous growth, the tendency is to excessive cell-formation. We evidently retard its advancement by the application of cold. Were it possible, indeed, to bring down the temperature of an entire growth below the vegetating point, we must inevitably kill it; but supplied as it is through the warm blood within, this is impossible." The practice of congealing the parts as a cure for cancer has been attended with great success. Five minutes is the usual time to apply the congealing agent to the exterior of the body, when the skin and subjacent tissues are in their

normal state: but it may be applied for fifteen or twenty minutes in the case of uterine cancer, and probably not with half the effect as when it is applied to the exterior, on account of the higher vascularity and natural heat of the part subjected to it. Congelation may be locally effected by mixing quickly half a pound of ice with half that quantity of common salt. This may be poured into a net of the thinnest silk gauze, and immediately applied to the part. The brine, as it trickles from the net, may be absorbed by a moist sponge.—*Braithwaite's Retrospect.*

PRACTICAL AND OPERATIVE SURGERY.

Novel operative proceeding for the removal of a fatty Tumor from the anterior wall of the Pharynx. By M. Langier.—The patient, a carpenter, aged 39 years, was of a vigorous constitution, and good general health. For about a year past he had experienced difficulty of breathing during inspiration, expiration and deglutition being perfectly free. The patientexpressed himself as if a kind of valve closed the air-passages in the effort at inspiration. This difficulty increased, and when seen by M. Langier, at the Hôpital de la Pitié, the inspiration was embarrassed and noisy, expiration and deglutition easy, the voice altered and gruff.

By firmly depressing the tongue, there was seen behind the epiglottis, and during the elevation of the larynx, a tumor of the size of a small nut, globular, smooth, and of a pale red color. On seizing the tumor with a pair of forceps, it could be raised and its attachment exposed. It adhered to the mucous membrane on the posterior aspect of the arytenoid and cricoid cartilages.

The increase of the tumor threatened suffocation, and the patient urgently desired its removal. The operation was performed by M. Langier in the following manner: The patient being seated, the head slightly inclined backward, the mouth widely opened, the tongue was strongly depressed, and the operator seized the polypus with a pair of forceps, which were immediately held by an assistant. The patient now breathed with facility. A Deschamps' needle carrying a double thread was then passed through the tumor from left to right. The two ends of the thread were withdrawn by the mouth, while a gum elastic sound was passed down the right nostril, and its extremity brought into the mouth; the two ends of the thread were then attached to the orifices of the sound and brought through the nostril. By this means the tumor was raised perpendicularly, and completely exposed, so that it was easy to remove it by a pair of curved scissors without injury to the epiglottis.

The tumor was of the size of the end of the thumb, and, when divided and examined microscopically, was seen to consist of a cellular and of a fatty structure.

The patient rapidly recovered without the slightest ill effects from the operation.—*L'Union Médicale.*

Rupture of the Crucial Ligament of the Knee-Joint. By Dr. Stark. (*London Jour. Med.*) Dr. Stark relates in the *Edinburgh Medical and Surgical Journal* for October, 1850, two instances of an injury, which he believes to have been rupture of the crucial ligament of the knee-joint. The symptoms, nearly identical in both cases, were the following. There was no dislocation either of the ankle or of the knee-joint; no displacement of the knee-pan; no rupture of the tendo Achillis, or of any of the tendons round the knee-joint. The motions of the ankle, and, when the patient was sitting, of the knee-joint, in so far as its ordinary motions were concerned, appeared perfect. In one case, when the patient assumed the erect posture, the knee-joint was found to be preternaturally movable; and, whenever any weight was endeavored to be thrown on the right leg, the knee fell against the left leg, *and bent with equal facility forwards or backwards.* When the legs were extended, the slightest pressure on the patella caused the foot to be thrown upwards, *and the leg could be bent forwards on the thigh to a certain extent.* No pain was complained of in the knee-joint, but only a sensation of weariness; and there was no redness, nor swelling, nor effusion of blood.

Dr. Stark made several trials on the first patient, to ascertain the accuracy of the diagnosis. When the knee was bound tightly with a handkerchief, and kept slightly bent, the patient could almost bear the weight of the body on it; but the moment he endeavored to straighten the limb, *the knee bent backwards under him*, and he fell to the ground unless supported. The lateral motion of the tibia on the thigh-bone, though freer than usual, was yet so very limited, that there was no reason to conclude that the lateral ligaments were injured.

The treatment consisted in fixing the limb in a nearly straight position,—just so slightly bent as to allow the flexors of the leg to have a slight advantage over the strong excensors attached to the patella. A strong flat steel spring, fourteen inches long, with a slight curvature, was softly padded, and bound to the back of the knee-joint, half of its length projecting down the back of the leg, half extending along the back of the thigh. The foot and leg, to above the knee, were then bandaged moderately tight. The injury was ultimately recovered from in both cases; but the knees remained weak, and the patients had to use support for a considerable period. In one case it was five months, in the other, three months and a week, before the use of crutches could be dispensed with.

Dr. Stark thinks these cases interesting from their rarity, and from their proving that the injury in question may be perfectly recovered from. He infers, that cure must have been finally effected by a reunion taking place between the ends of the ruptured crucial ligaments.

Excision of the Knee-Joint. By Mr. Fergusson.—Although the operation performed by Mr. Fergusson, and described as follows, was unfortunately fatal, yet it deserves the earnest consideration of

the profession, as it has in one instance, at least, been successful. Mr. Fergusson, made an H incision in front of the joint, the transverse line running a little below the patella. The extensor tendon was then directed upwards and raised with the patella, like a lid. The ligaments were then divided, the soft parts detached from around the bones; one inch and three quarters of the lower end of the femur, as well as the head of the tibia for about three quarters of an inch, were sawn off from before backwards, and the sharp margins of the bones pared down with the forceps. Mr. Fergusson then cut out the patella from its ligamentous attachment, several vessels were secured, and the lines of incision brought together by points of suture. Water-dressing and a roller were subsequently applied round the joint, and the patient removed to bed, where the leg was kept extended with a pillow under the ham.—*Braithwaite's Retrospect.*

MIDWIFERY AND DISEASES OF FEMALES.

Interval of several weeks between the delivery of Twins. By Dr. Nevins. (*Liverpool Medical and Pathological Society, Nov.*, 1850.)—Dr. Nevins related the case of a woman who was delivered of a premature fœtus, and, after a period of six weeks, was confined of a full-grown child, which was still-born.

The case gave rise to a conversation on the subject of super-fœtation, in which Dr. Lancaster said that it was reported to be not uncommon in Australia. When he first arrived there he did not believe in its existence; but so many cases were related to him, by surgeons, of full-grown children being born some weeks after delivery of apparently full-grown fœtuses, that he could not doubt nor dispute the evidence.

Dr. Macnaught had made careful inquiry on the plantations in Jamaica, on which cases of superfœtation related by authors were said to have occurred, and he could gain no information of any such events within the recollection of any living person.—*Med. Gaz.*

Air or Water Passary. By Mr. Higginson. At a meeting of the Liverpool Medical and Pathological Society in Nov. last, Mr. Higginson showed an ingenious contrivance for acting as a pessary, as a plug to check extensive hæmorrhage, or for dilating the os uteri. It consisted of a common small bladder, into the neck of which a gutta percha tube is inserted and secured. Whilst flaccid the bladder was to be introduced into the vagina, or even so far, if needful, as through a partially dilated os uteri; and an enema pump, or elastic bottle, being fitted to the gutta percha tube, air or water might be injected into the bladder, until it was distended so as to fill the vagina, or to dilate the os uteri to the required degree.—*Ibid.*

Elephantiasis of the External Female Organs of Generation (*Surgical Society of Paris, Dec.*)—M. Chassaignac exhibited a tumor of one of the labia and the nympha, consisting of hypertrophy of the

cellular tissue, or true elephantiasis. Blandin had formerly removed a similar tumor frum the other labium of the same patient. The operation was very simple; but, on account of the vascularity of the growth, numerous ligatures were required.

M. Monod related a case of a similar nature, in which the tumor had attained the size of the head of a child three or four years of age, and weighed four pounds.—*Med. Gaz.*

Report on Ergot of Rye. By M. Danyau.—On the 24th September, M. Danyau communicated to the Parisian Académie de Médecine the report of a large committee appointed to answer the following questions proposed to the Académie by the Prefet de la Seine:

"What are the possible effects of ergot of rye upon the life of the child and the health of the mother?"

The following report of the commission was adopted:

"1. Ergot, whatever may be the advantages which belong to it as a medicine, may, when imprudently administered, occasion the death of the child, and lesions more or less grave to the mother.

"2. In the present state of our legislation, it is impossible to withdraw from midwives their present legal right to administer ergot; and such a prohibition might, in certain cases, occasion serious inconvenience.

"3. It is to be wished, that new laws, anxiously expected, may, while elevating the standard of instruction applicable to midwives, fix their duties in a more precise manner, and, if possible, assign due limits to the nature of the prescriptions which they may be authorized to employ."—*Revue Médico-Chirurgicale de Paris*, October, 1850, p. 253.

[In the course of the discussion on the report, it was stated by M. Vellermé, that the question of the Prefet was suggested, by the almost annual increase in the proportion of infants still-born in Paris.] *Month. Jour.*

Central Laceration of the Perineum. By Dr. Thatcher.—Mrs. C——, in her first pregnancy, had been in labor some hours previous to her sending for me. The first stage was over, and the head advancing correctly in the pelvis, and nearly on its outlet. The parts were well relaxed; the pains moderate; but the patient unhappily most restless and impatient,—in fact scarcely controllable. The sacral part of the vagina appeared much *deeper* than natural, and the head was constantly pressing backwards forcibly, as if wishing to be extruded through the posterior part of the perineum and anus, instead of the superior and natural direction. As the perineum distended, it was quite evident that it was unusually elongated; the *set* of the pelvis reminded me much of that of the Hottentot Venus, pressing pubis and sacrum *out* of the ordinary line. Every exertion was made to guide the head superiorly to its proper position by the fingers, but this was of little use; and before the forceps could be

employed, a sudden terrific pain, aided by the *over-exertion* of the patient,—to my surprise and great distress, and despite of every retarding exertion,—forced the head through the perineal space, between the lower commissure of the labia and the anus, keeping the lower fraenum of the labia entire, as also, fortunately, the sphincter ani. The body was extracted in the same manner, as also the placenta. The patient was told that she had hurt herself by this unhappy exertion.

In the afternoon the parts were examined, and the above statements confirmed. The divided perineum was uniting at its edges, and appeared like two portions of a saw closing. They were kept united by ligature, and healed most favorably. The vagina also was kept clean, and after a fortnight all the parts were in their normal state. I have heard of two other similar cases, but this rare case is one evincing what may occur in any deviation from natural conformation, in defiance of the best care and aid.—*Month. Jour.*

[A complete analogue of this case occurred in the practice of Dr. Ellis of this city, and is recorded in the 1st volume of the New Series of this journal, page 339.—*Ed. N. Y. Jour. Med.*]

Pruritus of the Vulva in Children. By M. Vallez.—It is not very uncommon to find young children complaining of distressing itching of the vulva and anus. This forces them to rub these parts, which leads sometimes to violent irritation in them. The affection is serious in consequence of its occasionally inducing bad habits, which may continue to be practised after the original cause of the itching has disappeared, namely the presence in the genital regions of small ascarides, designated by Rudolphi by the name of *oxyures*.

Of this affection M. Vallez has observed two cases. In one, after having unsuccessfully used a local treatment for some days, he carefully examined the parts, and was astonished to find in the fossa navicularis, and around the fourchette, a quantity of small worms which by their motions produced the irritation. He immediately prescribed hip-baths, each containing in solution half a pound of saltpetre. After the third bath, the child was quite cured.

In the other case, the patient, a young girl, had for two years endured great suffering from the irritation of the vulva. A great variety of means had been resorted to in order to relieve her, but with no effect. On examination, M. Vallez detected the presence of the *oxyures*. Two of the saltpetre hip-baths effected a cure.—*Bulletin Général de Therapeutique*, 15th Oct. 1850.

PART FOURTH.

COMMUNICATIONS

AND

AMERICAN MEDICAL RETROSPECT.

COMMUNICATIONS.

Report of Cases occurring in the New-York Lying-In Asylum. By James Fergusson, M. D., Resident Physician.

Since the fifteenth of July, 1850, there are recorded as having been admitted to the benefits of this charity, three hundred and twenty-seven patients. The history of a few unusual cases selected from these may not be uninteresting:

Case 1st. *Spina Bifida.*—Catherine N——, aged 26, in gestation with her third child, admitted Dec. 20th, 1850, states that she has always enjoyed good health, and is so at the time of admission. On the evening of January 18th, 1851, was taken with labor symptoms, and after a very rapid and natural labor of two hours' duration, was delivered of a female infant. The child, at its birth, weighed six and a half pounds, and was a well-marked case of "spina bifida," the contents of the spinal canal protruding in the lumbar region in the form of an ovoid compressible tumor of the size of the closed fist, and presented a reddish, fungoid appearance. This was attended by its usual concomitant, a paralytic or deformed state of the lower extremities. No treatment was resorted to in this instance thus early, save to protect the tumor from pressure as far as possible, and prevent any unnecessary irritation, either of which invariably produced convulsions. On the morning of the fourth day after birth, the tumor bursted and sloughed, causing instant death. The mother's convalescence was rapid, thus corroborating her statement of previous good health.

Case 2d. *Partial Placenta Prævia.*—Mary C——, admitted Dec. 12th, 1850, in her fourth gestation. This was a tedious, complicated labor, although a head presentation, accompanied both prior and subsequent to delivery with considerable hemorrhage, a circumstance leading to the suspicion of placenta prævia. On making an examination before the waters broke, the head was easily detected, and at the same time a portion of placenta. The head, after the membranes ruptured, could not be felt so distinctly, but the placental attachment became more evident. A messenger was dispatched for one of the attending physicians, who soon arrived, made an examination, and coincided with me in diagnosis. The os uteri being well dilated, the hemorrhage still continuing, and the expulsatory efforts of the uterus inefficient to complete the delivery, the sat. tinct. of ergot was administered, which increased the strength of the pains and enabled the uterus to expel the head of the child, and after some delay, the body, assisted by manipulations followed, together with the placenta, thus confirming our diagnosis of a placental attachment. The child was still-born, and from the discharge of meconium and other evidences must have been dead for some time. After some hemorrhage the uterus was made to contract, and maintained so by a compress and binder. Absolute quiet and rest were enjoined for several days, and the mother's recovery has been uninterruptedly good.

Case 3d. *False Conception.*—Ann D—— was brought to the Asylum in labor, being, as she supposed, but eight months advanced in her first pregnancy. From the commencement of the sixth month of gestation to near the termination of the seventh, she had had attacks of flooding occurring about every two weeks or oftener. The definite amount could not be ascertained. After this period there was no recurrence of the hemorrhage until the morning of the same day on which she was admitted, when there was another sudden gush of blood, occurring without any known exciting cause. On making a vaginal examination the os was found somewhat dilated, and within and lying over it, a hard mass, communicating to the finger the sensation of a fleshy, granular substance, like the placenta. With the next pain, which came on almost immediately, there was considerable hemorrhage. This abated with the pain, but was again increased with the one following. This being in itself a symptom of placenta prævia, seemed to confirm the diagnosis founded upon the occurrence of the previous hemorrhages and the result of vaginal examination. With this impression, the attendant sent for Dr. Cock, one of the attending physicians of the Asylum; but before he arrived, a portion of

what proved to be a product of false conception, was expelled. It was about half the size of an ordinary placenta. Its uterine surface was firm, fleshy, and fibrous in character, and somewhat furrowed by irregular depressions. On the opposite side, the fleshy portion was arranged in cords and fibres, within the meshes of which, and attached upon their free surface, were a great number of transparent serous cysts or hydatids, varying in size from an eighth to three quarters of an inch in diameter, and attached, some by one, others by two or three extremely small delicate threads. Many of these were removed in a detached state from the vagina. It was particularly noticed that the tumor of the abdomen was less firm than that ordinarily produced by the gravid uterus, and the outline of the uterus itself could be but very indistinctly felt. With the view of evacuating as soon as possible the contents of the uterus, the administration of ergot was decided upon. An infusion of the ergot of the strength of two drachms to half a pint of water was given in four doses at intervals of fifteen minutes, but without any other effect than nauseating the patient. A few hours after, another mass, not so large as the first but of a similar character, was expelled, and a number of smaller portions during the succeeding forty-eight hours. There was no further hemorrhage, and the patient was soon convalescent. The breasts had enlarged the same as in ordinary pregnancy, and free secretion of milk established after confinement.

This case is of particular interest, both from its very unusual occurrence, but slight reference to such cases being found in any of the works upon obstetrics, and from the fact that the phenomena by which it was accompanied were strikingly analogous to those attending labor complicated with placenta prævia.*

Letters from California.—Its Climate—Prevalent Diseases—State of the Medical Profession—Introduction of Cholera, etc. By Thomas M. Logan, M. D., of Sacramento City.

The following remarks, which will claim the attention of all our readers, we extract from the advanced sheets of the March number of the New Orleans Medical and Surgical Journal. The communication was made to Dr. Fenner for the second volume of his "*Southern Medical Reports*," who has with his usual liberality laid it at once before the profession.—*Ed. N. Y. Jour. Med.*

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* This case occurred during my temporary absence from the Asylum, under the supervision of my friend Dr. E. J. Fountain, to whom I am indebted for the above particulars.

As to the health and climate of California, I now speak from experience when I affirm that we have all been grossly deceived. The prophetic Benton spoke wisely, when he said the gold would prove a curse to the country; while the too-highly gilded report of Butler King has caused many a disappointed immigrant to lament bitterly his own credulity. I have passed two rainy and two dry months in San Francisco—have travelled during one month of Spring and two months of Summer among the northern mines, and have resided near three months of Summer and Fall in Sacramento City, where I am now actively engaged in the practice of my profession, and during all this period I can conscientiously say that I have not passed one perfectly well or pleasant day. In San Francisco, during the rainy season, streets are one perfect quagmire, and there is no getting through them without wearing the stoutest kind of boots, that reach up above the knees, and which are worn, *ex necessitate*, outside of the pantaloons. The wind, which is blowing strong almost constantly, causes the cold rain to drive so as to render an umbrella nearly useless, and consequently catarrhs, pneumonias, diarrhœas, and other affections, so easily brought on by the surface becoming chilled, and the blood driven in upon the vital organs, prevail to a great extent. During the dry and summer season, the dust is as disagreeable and unhealthy as the rain of winter; and the prevailing violent wind, which sets in about 10 o'clock, causes the temperature to become so cold as to render an overcoat absolutely necessary for health and comfort. The deaths by diarrhœa alone were last winter estimated at about 30 per cent. in proportion to the cases.

In Sacramento City, about three-fourths of a degree north of San Francisco, a totally different climatic condition obtains. The climate and topography resemble much that of New Orleans; and while the heat of the day is excessive and oppressive, in consequence of the want of refreshing breezes, the mornings and evenings are chilly and uncomfortable. This is generally the case throughout the whole valley of the Sacramento, except that farther in the interior, among the mining regions, the solar heat is more intense. At Culoma, or Sutter's Mill, where the gold was first discovered, and which may be considered the heart of the mining districts, the thermometer frequently stands at 95° to 100° Fahrenheit at meridian, and on the 30th June last it reached as high as 105° in the shade, at the hotel where I then was.

The following tables present the mean thermometrical range for the months of June, July, August and September, 1850, in Sacramento City. During the month of June, the afternoons and evenings were rendered invigorating by cool breezes. On the 13th and 18th the wind was north-east; during the rest of the month it varied from south-east to south-west—generally south. The mean temperature for the month was as follows:—

8 A. M. . . . . 64 degrees.	4 P. M. . . . . 77 degrees.
M. . . . . 74 "	7 P. M. . . . . 66 "

During the month of July, also, the character and general direction of the wind was the same, and the following is the table of the mean temperature:—

6 A. M.	59 degrees.	4 P. M.	87 degrees.
M.	85 "	7 P. M.	76 "
2 P. M.	82 "		

The mean temperature for the month of August was:—

6 A. M.	59 degrees.	4 P. M.	93 degrees.
M.	85 "	7 P. M	79 "
2 P. M.	89 "		

As during September we had several copious showers, indicative of the commencement of the rainy season, I subjoin the following weekly averages of the mean temperature:—

FIRST WEEK.		THIRD WEEK.	
6 A. M.	57 degrees.	6A. M.	61 degrees.
M.	83 "	M.	81 "
2 P. M.	88 "	2 P. M.	85 "
4 P. M.	87 "	4 P. M.	85 "
6 P. M.	78 "	6 P. M.	78 "
SECOND WEEK.		FOURTH WEEK.	
6 A. M.	55 degrees.	6 A. M.	59 degrees.
M.	73 "	M.	84 "
2 P. M.	77 "	2 P. M.	87 "
4 P. M.	75 "	4 P. M.	79 "
6 P. M.	69 "		

During the present month, October, the days have been uniformly cool and pleasant; the thermometer seldom rising since the first week, above 76°. The wind has generally prevailed from N. N. W., and the nights have been so cold as to render two or more blankets necessary for comfort.

Of course I cannot yet speak positively of the winter months, but I am told they are so mild that vegetation is scarcely checked; ice seldom forms, and even when it does, it is never thicker than ordinary window-glass. For the great difference between the climate and temperature of San Francisco and this place, we must look to the geographical position, prevalence of winds, and other causes which produce the differences of the mean annual temperature of places under the same parallel of latitude. Were I to draw an isothermal line between Sacramento City and one of our Atlantic cities, I should inflect it towards my native city, Charleston, S. C., making a deviation of about six degrees towards the south; whereas, a similar line drawn from San Francisco would, I believe, (for, having no data, I cannot speak positively,) reach a point several degrees farther north of Charleston. This flexture of the isothermal curve, in passing from west to east, is not so great in the American as in the old continent: but the difference between the mean annual temperature of two localities so nearly situated as San Francisco and Sacramento City, is remarkable.

I have been thus particular in my remarks respecting the temperature, winds, etc., up to the present time, in order to exhibit some

data on which to predicate an opinion respecting the probable prevalence of the cholera, which has just appeared among us, and as preliminary to a few observations respecting "the prevailing diseases of California." I have already mentioned the deplorable mortality by one disease alone, diarrhœa, in San Francisco. I cannot say whether such continues to be the case now, as I can obtain no statistics from which to make a computation. My foregoing estimate of thirty per cent. mortality was formed from what I witnessed personally while engaged in the practice of my profession in San Francisco last winter and spring, as physician to "the Strangers' Friend Society." As my health began to break down under the rigors of a climate so uncongenial to my habits and temperament, I left there in April, in order to recruit my exhausted energies by an excursion among the mining regions, and subsequently settled here in August last. My present observations will therefore be based upon my experience in this city and neighborhood; and as diarrhœa is *the* disease of California, I will proceed to give my views respecting it.

If, philosophically speaking, what is commonly called diarrhœa is merely a symptom of different pathological states, the scientific physician often finds it extremly difficult to decide upon the true nature and seat of the disease. It is to be regretted that we are far from having attained to that perfection in pathology which enables us to decide with positive certainty in all cases of diarrhœa; still, in the present instance, I am satisfied, after much patient observation and autopsical investigation, that there exists in the intestinal mucous membrane some form or degree of inflammation. In almost all cases there is tenderness on pressure over the large intestines, and sometimes over the left hypochondrium. In the severe forms, the abdomen is often swelled, hot and painful to the touch, and the discharges are announced by searching pains, which seem to follow the transit of the alimentary mass, and to be connected with the peristaltic contractions of the muscular coat of the intestines. According to the acuteness of the attack, or the degree of inflammation, there is more or less intermixture of blood with the tenacious jelly-*like* stools, which are variously colored, according to the condition of the liver, the ingestion of food, etc. In a great number of cases the disease, if not properly treated, runs on to a fatal termination so rapidly, that it may be considered as differing from dysentery only in degree. Generally speaking, even when it assumes the so-called chronic form, which is nothing more than a return of slight attacks of the acute kind, the disease seldom becomes so protracted here as in the Atlantic States, and I have never known the inflammation to be transferred to the serous coats, giving rise to ascites, as is common elsewhere.

Such is the character of the disease commonly called diarrhœa, which appears to be endemic to California, and which has reigned epidemically in conjunction with a typhoid form of fever, during the last two months, throughout the whole valley of the Sacramento and its tributaries.

The Typhoid Fever, which alternates with diarrhœa, is of the

ataxic adynamic order first established by Pinel; and the intestinal affection is well marked from an early period. Its existence may be inferred when the tongue is morbidly red at the point and margins, while the body is dry, fissured, and covered with brown or black incrustations. The buccal mucous membrane is more or less covered with white ulcerations, and sordes rapidly commences upon the teeth and gums. Meteorism is found in a large proportion of cases: at times, it occasions painful distention—the uneasiness being augmented on pressure; but more commonly, and particularly when there is much sensorial disturbance, the sensibility is so blunted that the patient does not feel inconvenience even from firm pressure. This affection runs on, if not arrested, to a fatal termination much more rapidly than typhoid fever generally does elsewhere; and in some instances I have known complications take place in more than one organ at a time. In a few cases, I have observed great cerebral disturbance occur periodically. The inflammatory action, for the most part, however, seizes with greater intensity on the mucous membrane of the intestines, even when other organs are involved.

As to the causes which have induced this calamitous condition of health in California, we have only to reflect upon the great privation, fatigue, and exposure, which most of the immigrants, and particularly those who come across the plains, necessarily endure. It is well known, that whatever tends to impair the natural vigor of the body, renders the system more susceptible of disease. Baron Larrey, and other army surgeons, have observed that soldiers very readily contract diarrhœas and fevers after the exposure and bad diet incident to long marches, or severe and continued exertion in the field; and the recent sufferings of our army in Mexico forcibly establish the correctness of the observation. For the exciting causes, I refer you to what I have shown respecting the atmospherical vicissitudes. The majority of the immigrants live and sleep in the open air, and from the exposure, even under the protection of a tent, to the great alternation between the *heat* of the day and the *cold* air of the night, it can easily be conceived how, by an impression being made on the sentient extremities of the nerves, these agents, like contagion, may be instantaneous in their effects.

You may readily conjecture, after the above rapidly-sketched medical view of this country, with what gravity the advent of the cholera is regarded by us. Surely, if ever there was a condition of predisposing causes most favorable for the propagation of this formidable pestilence, that condition now exists here, and yet we do not find the disease marching in its devastating course in the same fatal and rapid manner which has hitherto attended it.

On the 7th October, the steamer Carolina arrived at San Francisco, from Panama, and was reported to have had on board during her passage twenty-two cases of cholera, of which number fourteen died. She was not quarantined. Since this period several well-marked cases and deaths of cholera have occurred at San Francisco, where the disease still exists. There is now but little apprehension

entertained of its assuming a malignant type in that city, and I am disposed to think that the usually prevailing high winds there are of favorable influence against the spread of the disease.

In Sacramento City, as we have already seen in our climatic account, there are no happy influences whatever operating in our favor; on the contrary, there is every reason to apprehend the worst. The first case I saw or heard of was brought to my hospital on the 18th October. The patient was in that stage presenting severe gastro-enteritic irritation; the tongue dry—thirst excessive—rice-water evacuations up and down frequent—skin cold and clammy, and pulse rapid, small and irregular. In addition to these incontestable symptoms, the countenance was anxious, ghastly and shrunk—the voice feeble, and the superior as well as inferior extremities contracted with spasms. I notified my associate, Dr. Greenman, of my views of the case, in which he coincided, and we treated him with large doses of creta ppt. with Sydenham's laudanum, sinapisms, and infusion of chamomile, flavored with a little Cologne water, for drink. Under this treatment our patient soon rallied, and in the course of twelve hours was comparatively well. The next, which was reported in the city papers as the first case, occurred on the 19th of October. The patient was visited by Dr. Spalding, the city physician, who pronounced it cholera, and the man died in twenty-four hours from the time of his attack. From this period the disease has continued to occur more frequently. On the 22d, eight deaths by cholera were reported in the daily papers; on the 23d, five deaths; on the 24th, seven deaths; on the 25th, twelve deaths; on the 26th, eleven deaths; on the 27th, eleven, and on the 28th, thirteen deaths. I regret that my engagements at the present time prevent me from dwelling more at large on the subjects embraced in this communication. At some future date, I purpose reverting to the history of the cholera in California. Until then, adieu!

Yours, respectfully,

T. M. L.

(To be continued in our next.)

PATHOLOGY AND PRACTICAL MEDICINE.

Gunshot Wound of the Heart. By W. W. Dawson.—Jacob Yantz, 41 years of age, received a wound from the discharge of a pistol, on the 17th September, about 8 o'clock, P. M. He was admitted into the wards of the Commercial Hospital, Cincinnati, on the 18th, twenty-four hours after the accident. The ball entered between the third and fourth ribs, and about half an inch from the sternum. When the wound was first received, air escaped from the orifice, but it had been closed by suture before he was admitted into the house. When brought in, he was pulseless, breathing short and frequent, surface cool and moist, tongue slightly furred and pale, emphysema over the right side, very restless and quite delirious.

On the 19th there was some evidence of reaction, pulse percepti-

ble but very feeble, surface not so cool, mind more tranquil. He complained of great pain in his chest, and opium was given to produce ease.

20th, again pulseless, surface cold and clammy—delirious. He died at 4 o'clock, P. M.

Autopsia.—The ball took a slightly oblique direction inwards and downwards, passing through the edge of the right lung and pericardium, entered the right auricle of the heart about the base of the auricular appendage, and passed out between the openings of the vena cava superior and inferior, and lodged about the centre of the body of the ninth dorsal vertebra.

The right pleural cavity was filled with blood, and the right lung collapsed. The pericardium was partly filled with a fibrinous clot.

This man lived *sixty-eight hours* after the wound.—*West. Lancet.*

Treatment of Internal Hæmorrhoids.—Dr. I. P. Garvin has recently published, in the *Southern Medical and Surgical Journal*, a very interesting paper, in which he states that he has treated a considerable number of cases of internal hæmorrhoids, some of them very severe and of long standing, by the use of cold water, in the following manner :—He directs about a gill of cold water to be thrown into the rectum immediately before *every attempt* to evacuate the bowels, and that this enema be retained several minutes, if possible. This usually produces an evacuation of the fæces, which have been so far softened on their surface, as to permit their escape without the least straining or irritation. After every evacuation, it will be proper to use ablutions of the parts, more especially in such cases as are attended by some protrusion of the bowels. The treatment is to be continued until some days after all uneasiness is removed. In old or very severe cases, to effect such amendment generally requires several weeks. It is highly important to impress upon the patient the absolute necessity of perseverance in the use of cold water, even though he should be so far relieved as to feel *almost* well, for if it be suspended too soon, a very slight cause will bring on a relapse. So decided is the relief afforded by this treatment, that few persons would be disposed hastily to abandon it, but for the inconvenience of applying it daily. The ordinary apparatus for enemata are so unwieldy, that they cannot be carried about conveniently. All difficulty from this source may be obviated by the employment of a small pewter syringe with a ring handle to the piston. One which will hold two ounces is very convenient, and may be carried in the pocket when necessary. When such enemata of cold water fail to procure sufficient alvine evacuations, the quantity of fluid may be increased to half a pint, or it may be necessary to resort to mild laxatives. Active purgation must be carefully avoided. The patient should be advised, never to aid the natural expulsive action of the bowels by straining.—*Am. Jour.*

Impure Medicines.—The following remarks and cautions, from the editor of the Western Lancet, so nearly coincide with our own

views that we are constrained to repeat them to our readers. We desire to call especial attention to them:—"Within the last few years we have heard much said in regard to the importation of adulterated and worthless articles of medicine into this country. The evil became so glaring and intolerable, that Congress passed a law, requiring that inspectors be appointed to prevent this wholesale fraud upon the health and lives of our citizens. This is all very well, and much has been accomplished by it, so that, *theoretically*, we now have no drugs in market but what are of a good quality. We say *theoretically*, for *practically* we believe that we are still imposed upon nearly as much now as we ever have been. The adulterative process has only changed hands; it has been transferred to our own country. It is as easy to extract the morphine from opium, and add blue clay to blue mass here as it is in foreign countries, and those just as willing to do it can easily be found. Again, the law of Congress can easily be rendered a nullity, by the appointment of incompetent or dishonest inspectors. The appointment should not be influenced by politics; faithfulness and competency should alone govern, and a salary given that will command persons having these qualifications. Every inspector except one may be of the right kind, and this one may destroy the whole of the good effects of the law, for dishonest importers will find out where spurious articles can be got through the Custom House with the greatest ease, and push such articles to that port. We have greatly congratulated ourselves that medicines for sale now must be of a good quality, and we may be thrown off our guard in purchasing. In fact we may be in greater danger of spurious articles than ever before, because the *forms* of security and protection have been enacted, without the substance.—We advise our country friends therefore, in particular, to relax none of their vigilance in purchasing their medicines. Purchase of no one, unless they have confidence in their knowledge of the hands through which the articles have passed. Get their supplies from the large cities, of persons of known honesty and competency, and avoid such articles as are brought West, particularly, unless in the hands of such dealers as feel that their character is involved in the kind of articles furnished. Even with all this precaution they may be deceived, and find that an accurate knowledge of pharmacy must be brought into practical application to detect the cheat. They should always be willing to pay fair prices, and avoid such shops as sell under price, for they will surely get an article to correspond, or sink far beneath a good one in relative value."

Exsection of the Clavicle for Osteo-Sarcoma.—Dr. Johnson, late Professor of Surgery in Franklin Medical College, Mo., says in the January number, for 1850, of the N. O. Medical and Surgical Journal, that the first operation for exsection of the clavicle for osteo-sarcoma, was performed on the 4th of May, 1811, in Hartford, Ky., by Dr. Charles McCrearry. The method adopted by the operator was similar to Professor Mott's, performed in 1828, and would admi-

rably serve as a guide for future surgeons, upon which they could elaborate.

MISCELLANEA.

Beck's Medical Jurisprudence.—The tenth edition of this Cyclopædia of Medical Jurisprudence has just been published in two large octavo volumes. We have had time only to give it a hasty examination—sufficient, however, to ascertain that the additions to it have been numerous and important. In our next number we shall notice it more at length; meantime we would recommend to all our readers to purchase and examine it for themselves. There is no work in the English tongue equal to it in point of authority or extent of research.

New Elements of Operative Surgery.—The third American edition of this great work of M. VELPEAU, with additions by Dr. MOTT, has just been published by Messrs. S. S. and W. Woods. The adaptation of this work to the wants and necessities of the young practitioner, is such as to require at our hands no comments. We would only say that no one ambitious of distinction in the Surgical department of our profession should be without a copy of it for reference and guide.

American Medical Association.—"The Committee of Arrangements request all Societies and other institutions authorized to send delegates, to forward a correct list of those selected to attend the next annual meeting, to the Secretary, Dr. H. W. De Saussure, at Charleston, S. C., on or before the first day of April.

In consequence of the resignation of Dr. Stillé, one of the Secretaries, from ill health, all communications intended for the next meeting of the Association, must be addressed to the remaining Secretary, Dr. H. W. De Saussure, Charleston, S. C.

The Fourth Annual Meeting of the American Medical Association, will be held at Charleston, S. C., on the 2d Tuesday of May next.

Editors of Medical Journals will please give the above notice an early insertion in their respective Journals.—*Char. Med. Jour.*

Surgical Report of the American Medical Association.—The committee is invited to meet in the Charleston Hotel, South Carolina, the evening of the first Tuesday in May, 1851. All professional brethren, who have *surgical* facts connected with the improvement of this branch of the profession during the year, will please address them to the chairman of the committee by the first of April, at *Augusta, Georgia.* As all cannot be reached by a circular, it is hoped no one will wait for a more direct application than this general invitation.

By extending this notice, the medical periodicals of our country

will advance the interests of the American Medical Association, and the editors will confer a favor upon their recent confrère.

PAUL F. EVE, M. D.,
Prof. of Surgery in the Louisville University, and
Chair. of Surgical Committee of Amer. Med. Ass.

Practical Medicine.—Report for the American Medical Association—"The undersigned, Chairman of the Standing Committee on *Practical Medicine*, appointed by the American Medical Association, May, 1850, respectfully solicits the coöperation of members of the Medical Profession in furnishing materials for the Annual Report in May, 1851. The duty of this Committee, as defined by the Constitution of the Association, is to "prepare an Annual Report on the more important improvements effected in this country in the management of individual diseases; and on the progress of epidemics; refering, as occasion requires, to medical topography, and to the character of prevailing diseases in special localities, or in the United States generally, during the term of their service." In order to fulfil the objects thus expressed, the requisite data must be supplied by medical practitioners in different sections of the Union. This is more particularly true with reference to the "*progress of epidemics*" and "*the character of prevailing diseases in special localities.*" Communications, therefore, are particularly desired from persons residing in places in which Epidemics have prevailed, or in which prevailing diseases have been marked by special characters during the present year. Epidemic Cholera and Dysentery are known to have prevailed more or less extensively in different parts of the country during the past summer. Facts bearing upon the features peculiar to the present season, the production, diffusion, mortality, treatment, etc., of these diseases, will be acceptable. It is requested that Communications upon these or any of the subjects coming under the cognizance of the Committee, be transmitted to the undersigned by the first of March, 1851.

"All contributions with which the Committee may be favored, will receive due attention and acknowledgment.

"AUSTIN FLINT.

"BUFFALO, New-York, Nov. 1850."

Southern Medical and Surgical Journal.—PROF. GARVIN has retired from the editorial management of this well-conducted periodical, and has been succeeded by PROF. DUGAS, whose appearance among the editorial fraternity we heartily welcome. The former high character of this journal will be sustained.

The Stethoscope; or, Virginia Medical Gazette.—The foregoing is the name of a new medical journal, which made its first appearance on the 1st of January last. It is published monthly, at Richmond, Va., and edited by P. CLAIBORNE GOOCH, M. D. Each num-

ber contains 64 octavo pages, and presents a large variety of *original* matter, which fact cannot fail to render it a favorite with the profession.

American Journal of Dental Science.—We perceive that this valuable journal has passed from under the immediate auspices of the American Society of Dental Surgeons; this change took place with the close of the tenth volume. It is to appear hereafter as an individual enterprise "depending for pecuniary support upon its subscriptions only; and for its literary maintenance upon the exertions of the editor (PROF. HARRIS), and of the able friends who have kindly promised their assistance." With the last October number it commenced a *new series*. It is ably conducted, and merits a liberal support.

The Philadelphia Lancet.—This new candidate for the favor of the profession, commenced with the new year. It is published semi-monthly, and edited by T. D. ENGLISH, M. D.

New-York Dispensary.—We have received the Sixty-first Annual Report of this time-honored institution—the largest of the kind probably in this country. From it we gather that 40,835 patients received the benefits of gratuitous aid, &c., during the past year. The duties of attending on this vast number of patients have been performed by fifteen physicians; eight of whom, only, receive a small compensation for their services. It has often struck us, as we have looked over the annual reports of this institution, that it now subserves the cause of medical science but very little—that this was not the case formerly, is evident on referring to our periodical literature, for there we find numerous contributions, the materials for the composition of which, were collected in the discharge of the duties of physician to this institution, under a somewhat different system of medical police, than that at present in vogue. A high degree of prosperity in medical institutions can only be attained by a full recognition and discharge of all the mutual interests and obligations of its officers, medical or otherwise. A proper appreciation of the truth of the remark, would, we believe, aid materially in this institution the great objects of science and humanity.

OBITUARY.

DEATH OF JOHN JAMES AUDUBON, at his residence in this city, on 27th of January last, the celebrated naturalist, and immortal author of the "Birds of America."

DEATH OF JOHN S. CAMERON, M. D., recently at Quarantine, S. I., aged 33 years. He was Assistant Physician of the Marine Hospital.

DEATH OF H. T. JUDSON, M. D., at his residence in this city, on the 23d February, aged 50 years. In the early part of his professional career he contributed, to the periodical medical literature of our city, a number of interesting papers.

TO READERS AND CORRESPONDENTS.

☞ Notices of several new works, prepared for this number, have been necessarily deferred till our next, notwithstanding we have added sixteen pages more than our promised number.

The following works have been received:—

On Diseases of Menstruation, and Ovarian Inflammation in connection with Sterility, Pelvic Tumors, and Affections of the Womb. By EDWARD JOHN TILT, M. D., Physician to the Farringdon General Dispensary, etc., etc. New-York: Samuel S. and William Wood. 1851. 12mo. pp. 286. (From the Publishers.)

Operative Surgery. By FREDERIC SKEY, F. R. S. Philadelphia: Blanchard and Lea. 1851. 8vo. pp, 661. (From the Publishers.)

New Remedies; with formula for their administration. By ROBERT DUNGLISON, M. D., Professor of the Institutes of Medicine, etc., in the Jefferson Medical College, Philadelphia. Sixth edition, with extensive additions. Philadelphia: Blanchard and Lea. 1851. 8vo. pp. 755. (From the Publishers.)

The Dissector; or Practical and Surgical Anatomy. By ERASMUS WILSON, author of a "System of Human Anatomy," etc. With one hundred and fifteen illustrations. Edited by PAUL B. GODDARD, M. D. Philadelphia: Blanchard and Lea. 1851. 12mo. pp. 458. (From the Publishers.)

A Treatise on Dislocations and Fractures of the Joints. By SIR ASTLEY COOPER, BART., F. R. S., Sergeant-Surgeon to the King, etc. A new edition much enlarged. Edited by BRANSBY B. COOPER, F. R. S., Surgeon to Guy's Hospital. With additional observations, and a memoir of the author. A new American edition. Philadelphia: Blanchard and Lea. 1851. 8vo. pp. 496. (From the Publishers.)

Lectures on the Eruptive Fevers; as now in the course of delivery at St. Thomas' Hospital, in London. By GEORGE GREGORY, M. D., Fellow of the Royal College of Physicians, etc., etc. First American edition; with numerous additions and amendments by the author, comprising his latest views. With notes and an Appendix, embodying the most recent Opinions on Exanthematic Pathology; and also Statistical Tables, and Colored Plates. By H. D. BULKLEY, M. D., Physician to the New-York Hospital, etc. New-York: S. S. and W. Wood. 1851. 8vo. pp. 379. (From the Publishers.)

Historical Sketch of Logic, from the earliest times to the present day. By ROBERT BLAKEY, Professor of Logic and Metaphysics, Queen's College, Belfast, author of "The History of the Philosophy of the Mind," etc., etc. London and New-York: H. Baillière. 1851. 8vo. pp. 524. (From the Publisher.)

Practical Observations on the Treatment of Stricture of the Urethra and Fistula in Perineo; illustrated with cases and drawings of these affections; with an appendix containing various letters, papers, etc. By Prof. SYME, Dr. MULLER, and the AUTHOR, connected with the subject of the operation of the Perineal Section. By JOHN LIZARS, late Professor of Surgery to the Royal College of Surgeons, etc. etc. Edinburgh: W. H. Lizars. London: S. Highley. 1851. 8vo. p. 91. (From the Author.)

Eighth Annual Report of the Managers of the State Lunatic Asylum, of the State of New-York. Made to the Legislature, Feb. 27, 1851. Albany, 1851. 8 vo. pp. 62. (From the Asylum.)

Proceedings of the Medical Association of the State of Alabama; begun and held in the City of Mobile, December 10–14, 1850; with an Appendix. Mobile, 1851. 8vo. pp. 156. (From the Association.)

Transactions of the Medical Society of the State of New-York during its Annual Session, held at Albany, Feb. 4, 1851. Albany, 1851. 8vo. pp. 248. (From the Society.)

State of the New-York Hospital and Bloomingdale Asylum, for the year 1851. New-York, 1851. 4 to pp. 40. (From Dr. Vandervoort.)

Thermal Ventilation and other Sanitary Improvements, applicable to Public Buildings, and recently adopted in the New-York Hospital: A Discourse, delivered at the Hospital, February 8th, 1851. By JOHN WATSON, M. D. New-York, 1851. 8vo. pp. 41. (From the Author.)

Success in the Medical Profession: An Introductory Lecture, delivered at the Mass. Medical College, Nov. 6th, 1851. By John Ware, M. D., Hersey Prof. of the Theory and Practice of Physic in Harvard University. Boston, 1851. 8vo. pp. 28. (From the author.)

The following Journals have been received in exchange:

The American Journal of the Medical Sciences; edited by ISAAC HAYS, M. D.; for April. (Quarterly. Philadelphia.)

The American Journal of Insanity; edited by the Officers of the N. Y. State Lunatic Asylum; for April. (Quarterly. Utica.)

The American Journal of Pharmacy; edited by JOSEPH CARSON, M. D., and WM. PROCTOR, M. D.; for April. (Quarterly. Philadelphia.)

The New Jersey Medical Reporter and Transactions of the New Jersey Medical Society; edited by JOSEPH PARISH, M. D.; for April. (Monthly. (Burlington.)
☞ *With the April number this Journal changed from a Quarterly to a Monthly.*

The Medical Examiner and Recorder of Medical Science; edited by F. G. SMITH, M. D., and JOHN B. BIDDLE, M. D.; for March and April. (Monthly. Philadelphia.)

The Charleston Medical Journal and Review; edited by D. J. Cain, M. D., and F. P. PORCHER, M. D.; for March. (Bi-monthly. Charleston.)

The New Orleans Medical and Surgical Journal, devoted to Medicine and the Collateral Sciences; edited by A. HESTER, M. D.; for March. (Bi-monthly, New Orleans.)

Southern Medical and Surgical Journal; edited by L. A. DUGAS, M. D.; for March and April. (Monthly. Augusta.)

Buffalo Medical Journal, and Monthly Review of Medical and Surgical Science; edited by AUSTIN FLINT, M. D.; for March and April. (Monthly. Buffalo.)

The North-Western Medical and Surgical Journal; edited by J. EVANS, M. D., and EDWIN J. MEEK, M. D.; for March. (Bi-monthly. Chicago and Indianapolis.)

The North-Western Medical Intelligencer. (Supplementary to the North-Western Medical and Surgical Journal,) for April. (Monthly. Chicago.) ☞*This is a new Monthly Journal, published only for such subscribers as pay for the North-Western Journal in advance.*

Transylvania Medical Journal; edited by ETHELBERT DUDLEY, M. D. (Bi-monthly. Lexington.) ☞*No number of this Journal has been received since Dec.*, 1850.

The Western Lancet and Hospital Reporter; edited by L. LAWSON, M. D., and GEO. MENDENHALL, M. D.; for March and April. (Monthly. Cincinnati.)

The New-York Register of Medicine and Pharmacy; edited by C. D. GRISWOLD, M. D.; for March and April. (Semi-monthly. New-York.)

The New-York Medical Gazette; edited by D. M. REESE, M. D.; for March and April. (Semi-monthly. New-York.)

The Boston Medical and Surgical Journal; edited by J. C. V. SMITH, M. D.; March and April numbers received. (Weekly. Boston.)

The Western Journal of Medicine and Surgery; edited by L. P. YANDELL, M. D., and T. S. BELL, M. D.; for March and April. (Monthly. Louisville.)

The Ohio Medical and Surgical Journal; edited by RICHARD L. HOWARD, M. D.; for January and March. (Bi-monthly. Columbus.)

With the commencement of the new year this Journal changed editor. As will be seen above, Prof. Howard has taken the chair rendered vacant by Prof. Smith. We welcome Dr. H. to the editorial ranks, feeling assured that our periodical literature will be enriched by his valuable labors.

The Stethescope and Virginia Medical Gazette; edited by P. CLAIBORNE GOOCH, M. D.; for January, February, March and April. (Monthly. Richmond, Va.)

Nashville Journal of Medicine and Surgery, edited by W. K. BOWLING, M. D.; for February. (Bi-monthly. Nashville, Tenn.)

This is the first number of a new journal, started in connection with the Medical Department of the University of Nashville. The number before us contains a variety of practical matter. We wish for the work a long and prosperous career.

The Philadelphia Lancet; edited by THOMAS D. ENGLISH, M. D.; Feb. 15th, March 1st, April 1st and 15th, not received. Semi-monthly. Philadelphia.)

The New-York Dental Recorder; edited by C. C. ALLEN, M. D., Dentist; for March and April. (Monthly. New-York.)

The British-American Medical and Physical Journal; edited by ARCHIBALD HALL, M. D., L. R. C. S. E.; for March and April. (Monthly. Montreal.)

Dublin Quarterly Journal of Medical Science; edited by ———; for February. (Quarterly. Dublin, Ireland.)

The British and Foreign Medico-Chirurgical Review, or Quarterly Journal of Practical Medicine and Surgery; edited by ———; for January; American edition. (Quarterly. New-York.)

Dublin Medical Press; edited by ———; for February and March. (Weekly. Dublin.)

London Medical Gazette, or Journal of Practical Medicine: edited by ——; for January, February and March. (Weekly. London.)

London Journal of Medicine, a Monthly Record of the Medical Sciences; edited by ——; for January, February and March. (Monthly. London.)

Monthly Journal of Medical Science; edited by WM. ROBERTSON, M. D.; for February and March. (Monthly. Edinburgh.)

Journal des Connaissances Médico-Chirurgicales. Par LE DR. A. MARTIN-LOUZER, (à Paris,) for Nov., Dec., Jan. and Feb., 1851.

☞ Communications intended for publication, and Books for review, should be sent *free of expense*, directed to Dr. Purple, editor of the New-York Journal of Medicine, care of R. F. Hudson, 39 Wall-street, *New-York*. Persons at a distance may direct parcels, *paid* as above, under cover, to M. Hector Bossang, Lib. quai Voltaire, No. 11, *Paris;* or G. P. Putnam, 40 Bow Lane, Cheapside, *London;* or Lindsay and Blakiston, *Philadelphia;* or Wm. B. Ticknor & Co., *Boston*. The attention of Correspondents is respectfully requested to the above, as the publisher is frequently subject to unnecessary expense for postage and carriage.

All remittances of money and letters on the *business* of the Journal, should be directed to the publisher.

The advertising sheet belongs to the business department of the Journal, and all communications for it should be addressed to the publisher, under whose exclusive control it is.

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(The Operative Surgery of Dieffenbach. Leipsic; 1848. 2 vols. pp. 1720).

Traité de Pathologie Externe et de Médecine Operatoire par AUG. VIDAL (de Cassis). 5 Vol., avec 520 fig., intercalés dans le texte. Deuxième Edition: J. B. Bailliére; Paris, 1846.

(Treatise on External Pathology and Operative Surgery, by Aug. Vidal (de Cassis), 5 vols., with 520 wood cuts. Second edition: Paris, 1846. J. B. Bailliére, pp. 4051.)

Contributions to the Pathology and Practice of Surgery. By JAMES SYME, F. R. S. E., &c. Edinburgh, 1848; pp. 336.

Selecta Praxis Medico-Chirurgicæ quam Mosquæ exercet: ALEXANDER AUVERT. 120 plates, folio. Paris and Moscow, 1850.

Operative Surgery: By FREDERIC C. SKEY, F. R. S. Philadelphia: Blanchard & Lea. 1851, pp. 709.

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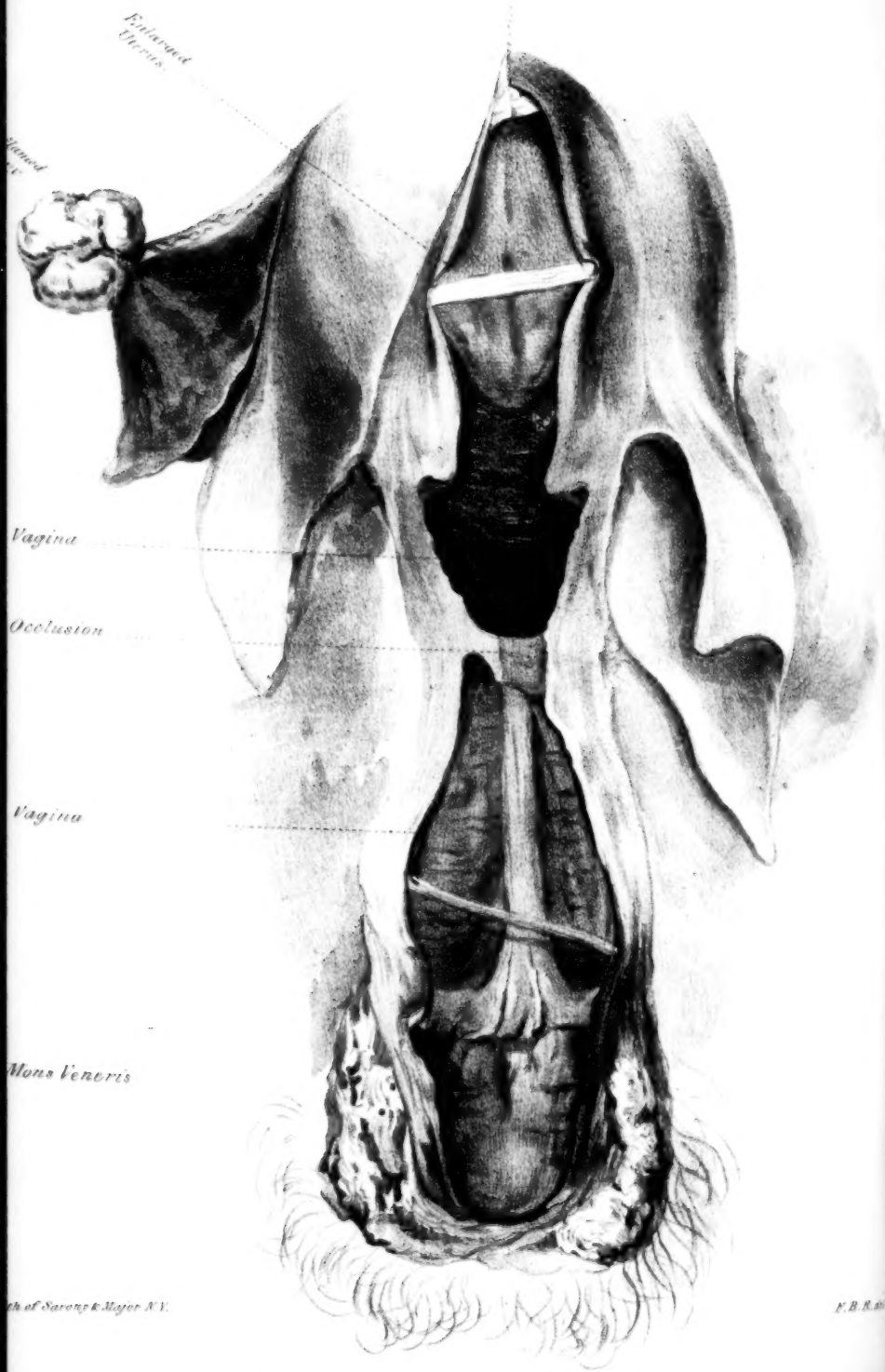

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